

samlink

A Kyndryl Company

Generative AI in Banking

A Must for Compliance and Growth



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1. Introduction

1.1 Why This Document

This document aims to assist the bank's executives in addressing their key priorities and concerns, such as productivity, compliance, competitiveness, and business sustainability.

Generative AI is proposed as a technology capable of significantly impacting these areas, in line with current and future regulations. While Generative AI is a revolutionary technology, it serves as a business enabler from a banking perspective, and that is what this document is attempting to prove.

This document outlines steps to integrate Generative AI applications, considering risk and business factors, and building a sustainable model within the bank to be prepared to use Generative AI as it sees fit. This document also emphasizes the importance of understanding and managing the risks associated with Generative AI. It answers crucial questions from the bank's executives, addresses their concerns, guides, and helps them to embrace Generative AI for the specific purposes of sustaining and growing their banking business.



1.2 Key Takeaways

1. Challenges

- a. Banking regulations have a significant impact on capital, productivity, and growth. Banks are currently grappling with a complex regulatory equation, alongside a radical transformation of the entire banking ecosystem in Europe.
- b. Banks are facing heightened competition from non-banks and neobanks from both domestically and internationally.
- c. The level of adaptation needed to face these challenges from both a human resource and technological perspective is unprecedented.
- d. Generative AI, a very significant technological disruption, is emerging with a high rate of adoption, unlike any other technological disruption banks have faced in the past.

2. Solution

- a. Compliance to regulation is a burden but also part of the solution. Generative AI will help banks optimize their productivity costs and enable business growth.

3. The Banks should embrace Generative AI with risks and enablers in mind

- a. Banks excel in risk management practices, which is set to become a key competitive differentiator against smaller banks.
- b. Categorizing risk models of Generative AI applications helps to prioritize adoption and deployments.
- c. The concerns the banks have today about Generative AI will fade in the future thanks to some key enablers that will de-risk Generative AI applications.
- d. Regulation plays an essential role as a key enabler for the banks.

4. Guidelines for the banks to get started with selected Generative AI applications

- a. Highlights about AI regulations.
- b. Samlink-Kyndryl shares its know-how and experience on how to prepare the organization for change and adoption.
- c. Understanding of the relevant ecosystem and the type of LLMs to consider.

2. Revolutions to Embrace

2.1 The Banking Regulation Revolution

The adoption of Generative AI by banks is a unique challenge, unlike any other technological disruption they have faced in the past, such as the internet, data security, mobile applications, and cloud migration. Previous technological disruptions took time to evolve and impact the banking sector. The speed of adoption was determined by factors such as awareness, internal adaptation, and ecosystem readiness.

While it's possible to draw comparisons by looking at the history of disruptions in banking, Generative AI stands apart. Not only is it revolutionary, but its speed of adoption is also unprecedented. AI has gained significant traction in many enterprise application fields within banking already.

What sets Generative AI apart is its daily use by everyone and the rapid pace at which its performance and accuracy are improving. This makes it a unique and powerful tool for banks to leverage in their operations for a start.

Indeed, Generative AI is a game-changer. However, banks have traditionally been slow to adopt new technologies, often shielding their operations and technologies behind formidable barriers. So, why the sudden interest?

Most bank executives are aware of the need to implement Generative AI, primarily because it's becoming an industry standard. But is this reason substantial enough? The banking sector is complex and multi-faceted; it's unlikely that Generative AI will transform every aspect of it overnight.

Let's momentarily shift our focus from Generative AI and examine the current banking and financial landscape in Europe, particularly the regulatory landscape of Digital Finance being implemented by the European Commission. The European Commission is fortifying regulations related to security and open banking, ensuring secure sharing of payment and financial account data, especially as more sophisticated fraud methods emerge when criminals also take advantage of Generative AI in their ecosystem. Concurrently, the European Commission is liberalizing the banking and finance economy, empowering non-banking entities, and fostering competition in banking services both domestically and within the EU. It is crucial to note that these changes extend beyond just payments.



The European Commission is also putting forward a legislative proposal framework for financial data access. This framework will establish clear rights and obligations to manage customer data sharing in the financial sector beyond payment accounts. In practice, this will lead to more innovative financial products and services for users and will stimulate competition in the financial sector.

Ref: finance.ec.europa.eu



To avert another financial crisis and to strengthen banks, the Basel Committee mandates that European banks maintain a specific amount of capital, surplus, and liquidity. This requirement directly impacts the potential volume of loans and other investments the banks could have used this very same capital for.

In addition to Basel III capital and liquidity requirements, and additional forthcoming Anti-Money Laundering/Counter-Terrorist Financing (AML/CFT) measures aimed at banks, there are several new regulatory frameworks and proposals that start to and will impact greatly the banks. These include PSD3 (Payment Service Directive 3),

IPR (Instant Payment Regulation), DORA (Digital Operational Resilience Act), FIDA (Framework for Financial Data Access), DMA (Digital Markets Act), ESG (Environmental Social and Governance), Data ACT, EIDAS (particularly the EUDI wallet), CBDC (Central Bank Digital Currency), and AI ACT. Let's also note more specific regulations to financial products and services related to lending, investment, or wealth to name a few, that will continue to evolve as well.

All those current and upcoming regulations form a very complex, interconnected, and interdependent set of rules to comply with.

Unlike in the past, these regulations cannot be managed and complied with individually. Without adequate planning and assessment, banks risk making ill-timed IT investments, unbundling, or doing the bare minimum simply to avoid not being compliant. This could result in them being unprepared, having to deprioritize crucial innovations and transformations, and being unable to fully leverage the open banking economy model that other competitive banks will utilize.

A revolution is underway in the European banking sector, driven by the advent of open finance regulations. These changes are expected to impact the Return on Equity (ROE) of banks, both directly and indirectly, due to increased compliance costs and heightened competition over the next five years. This competition will not only come from non-banking local entities but also from other European banks and non-banks, looking at acquiring new customers.

As open banking and open finance rails become more prevalent, domestic banks will face intensified competition from their local and European counterparts. The enabling ecosystems will foster increased competition, facilitating the exchange of more financial data via standardized rails or APIs.

One of the most significant changes will be in the mortgage business. Competitors will have the ability to offer better terms and access mortgage ledgers and contracts, with the customer's consent. This level of openness is unprecedented in the European banking industry.

Banking regulations have a profound impact on capital, productivity, and growth, among other crucial factors. Banks are now confronted with a complex regulatory equation to solve, coupled with a radical transformation of the entire banking ecosystem in Europe. The pace of change and the level of adaptation required from both a human resource and technological perspective is unparalleled.

Now is the opportune time for well-capitalized banks to prepare for this transformation and evolve into the regulated open banks they need to become. This should be viewed as an opportunity to bolster their core value proposition to their customers and attract new clientele.

Generative AI can play a pivotal role in addressing these challenges. But how exactly can it alleviate most of the pain points mentioned above? That's a question worth exploring.

2.2 The Generative AI Revolution in Banking, in Numbers

The banking sector is a prime candidate for AI integration, considering its current workforce and risk management practices. Bank employees can be categorized into three groups: customer service representatives, administrative and compliance staff, and software developers. Each of these groups could see a productivity boost with the aid of Generative AI.

A significant expense for any bank is its IT infrastructure and back-office operations.

These operations, if not sufficiently automated, demand a substantial amount of manpower and time. Also, currently, the data processing for various financial products and services is handled separately within different verticals.

Therefore, enhancing productivity is a top priority this year. If a bank's core financial products and services lack competitiveness, it will be challenging for the bank to maintain and expand its customer base for the years to come.

Here are few important references:

- ✓ Generative AI in Software Development: Generative AI is considered a low-risk application in software development. A Github pilot experiment demonstrated that developers using AI tools could complete tasks approximately 56% faster than those not using AI.
- ✓ Future of AI in Coding: Gartner predicts that by 2027, 70% of software developers will utilize AI-powered coding tools.
- ✓ Cost Reduction with Generative AI: According to Accenture, Generative AI can help reduce costs related to mid and back-office operations by 9-12%.
- ✓ Banks have a considerable amount of personnel working in the second line of defence (2LOD). Generative AI will enable to reduce considerably the number of people in compliance and improve greatly the way they work.
- ✓ Accenture suggests that Generative AI could potentially increase a bank's operating income by 25-40%. Less time spent on repetitive tasks allows support agents to focus more on selling higher margin products and services.
- ✓ Productivity Boost with Generative AI: The National Bureau of Economic Research (NBER) reports that Generative AI tools can increase productivity by an average of 14%.

The above constitutes a comprehensive set of facts for the banks to embrace Generative AI to boost their productivity, but how about business growth?

Banks are now being urged to adapt to the open finance model, a move initiated by the European Commission. This model not only anticipates regulatory requirements but also creates new revenue streams for banks. It serves as a regulated conduit and a secure data pipeline to broaden their distribution strategy, attract deposits, and offer competitive financial products and services, mortgages included, to citizens across Europe.

Generative AI is one of the technologies that can assist in selling the bank's financial products and services. It can help expand the bank's ecosystem and provide a highly customized experience to any customer in any marketplace for instance.

For the deployment of such a highly customized customer experience or offering, it's essential for the bank and its business partners to have a comprehensive knowledge about the customer, providing of course that at all time GDPR is complied with. This includes their financial status, preferences, purchasing behavior, and habits. This information allows for the presentation and offering of tailored products or services online at the right price to the customer. The more targeted, simplified, and sales-driven the marketing messages are, the more likely the sale. Generative AI is the technology that can enable this, and help the bank grow its revenues.



2.3 Not Considering Generative AI is to Take a Relevant Risk for the Future

Banks' executives in Europe are fully aware of the many challenges ahead;

- 1** Regulatory Challenges: Between 2024 and 2028, banks will face a wave of new banking regulations both on EU level and internationally from the Basel Committee.
- 2** Lower Return on Equity (ROE) and higher C/I (Cost to income ratio) because of higher productivity costs.
- 3** The cost of notably implementing and running Generative AI will increase, there will be an important shift of IT expenditure as in compared with traditional IT of today.
- 4** New competitors: the regulations will level the playing field for non-banks and Payment Service Providers (PSPs), enabling them to compete more effectively with traditional banks.
- 5** Increased existing competition: European regulations will intensify direct competition among European banks.
- 6** Continued Compliance: Banks will still need to maintain their capital and liquidity requirements, withstand stress tests, and comply with Anti-Money Laundering/Counter-Terrorist Financing (AML/CFT), security, and other reporting requirements. The new upcoming Basel IV will feature new guidance on capital requirements the Banks need to be prepared about.
- 7** Technological Disruption: A significant technological disruption is on the horizon, with a high rate of adoption expected by both consumers and businesses, Generative AI.
- 8** Data Sharing Requirements: Banks, PSPs (Payment Service Providers), and FISPs (Financial Information Service Providers) will be required to share more information about fraud, payment, and financial data using regulated standards.



These changes need to be carefully evaluated and addressed by banks to mitigate operational risks, including but not limited to business loss, customer churn leading to reduced revenues, fewer payment transactions and volumes to monetize, increased competition in their primary market, and inefficiencies in development and support. The rise in sophisticated and instant fraud at various levels also needs to be considered.

The capital risks for banks will also increase, particularly in the core area of banking mortgages. Higher customer churn rates will impact deposit volumes, thereby reducing the commercial bank's ability to lend money and earn the lucrative net interest income that contributes to the overall profit of the bank. Coupled with the prediction that the uptake volume of mortgages will remain low in Europe until 2028, it's clear that banks need to transform and adapt more quickly than before.

Generative AI presents an opportunity for banks to adapt faster and achieve tangible results.

Banking regulations are already impacting banks' productivity. The advent of Open Banking and Open Finance regulations will further affect the sales of banks' financial products and services in the future, leading to increased production and capital risks. Banks will be more exposed to competition that comes from within the banking industry but also from outside the banking industry (BigTechs, merchants...).

3. Advantages Banks Have— Management of Risks

Deploying generative AI in enterprise applications is not inherently complex. The critical aspect lies in the implementation: managing and mitigating the associated risks, ensuring that the AI operates harmlessly, ethically, and accountably, all while aligning with business objectives. All those aspects are process driven. They imply a control, chain of decisions and reporting, which is not unfamiliar to the banks.

The initiation of a process to put in place a Generative AI program can be daunting for many industries, particularly if they lack efficient risk assessment and management systems. For those with established processes, the integration of generative AI is more of a transition than a complete overhaul.

Banks are adept at risk management. With regulatory shifts from a compliance checkbox to a risk-based approach driven by the EU, risk assessment and management are becoming increasingly centralized within banks. New initiatives must navigate this framework, a practice that banks are well-versed in, allowing them to assess, manage, mitigate risks, and report effectively.

Generative AI is poised to play a crucial role in reducing banking risks, such as preventing payment fraud more efficiently than preventive AI and decreasing the bank's liabilities, to name a few. It is, therefore, logical for generative AI enterprise initiatives to adopt a risk-based approach. The implementation of a generative AI



program necessitates the early involvement of risk management, compliance, and legal personnel. These are the same individuals currently responsible for ensuring compliance with the myriad of regulatory requirements affecting their business, licenses, financial products, and services. They will be integral in adapting risk practices for the incorporation of generative AI.

According to the adopted AI Act: “banking or insurance entities, should carry out a fundamental rights impact assessment prior to putting it into use”.

The AI Act requires the evaluation of the following key aspects:

- The risks that could harm individuals or groups and the risk mitigation strategies.
- The impact assessments and related governance.
- The reporting protocols for regulatory bodies and the complaint resolution processes.

The evaluations listed above are somewhat similar to the ones required by GDPR which have been put in place by the banks in the past.

For banks, adapting to Risk Management practices is not a novel concept. They hold a significant edge over competitors, particularly when compared to smaller banks and non-banking entities that may lack robust risk management frameworks and policies necessary for implementing Generative AI technologies at various operational levels.

For larger banking institutions, excellence in Risk Management practices is poised to become a key competitive differentiator towards smaller banks.

Because of the above, we foresee smaller banks will need to adopt more Banking as a Service (BaaS) and Banking as a Platform (Baap) models, partner with Fintechs, Regtechs, and even with competing banks to be able to cope with the growing regulatory demands they will need to comply with, to remain competitive.



4. AI, Machine Learning, Generative AI in a Nutshell.

Artificial Intelligence (AI) are machines that analyze data, learn patterns, and predict outcomes, embodying the principles of machine learning. The accuracy of AI improves all the time and can be refined in many ways.

Data and Machine Learning:

- Types of Data: AI processes three types of data:
 1. Unstructured: Data without a predefined format or structure such as images, videos, audio.
 2. Semi-structured: Data that does not reside in a relational database but has some organizational properties that make it easier to analyze.
 3. Structured: Data that resides in fixed fields within a record or file, such as in a relational database.
- In banking, machine learning excels at processing structured data, such as historical transactions, product information, and customer data, which may be formatted and categorized differently. It can also incorporate additional unstructured data from public domains or customer behavior.

AI Learning Methods:

- Supervised Learning: The machine learns from labelled data, with guidance on what patterns to look for.
- Unsupervised Learning: The machine identifies patterns in structured and unlabeled data without explicit instructions.
- Reinforcement Learning: The machine learns via trials and errors, receiving feedback from its actions.

Machine Learning Algorithms and Models:

- Algorithms: The engine of AI consists of machine learning algorithms, which determine how the machine learns.
- Models: A machine learning model is the output of an algorithm trained with some data, representing what the machine has learned.
- Machine learning models are designed to understand and interpret human language.

Deep Learning:

- Deep Learning: This subset of machine learning mimics the neural networks of the human brain, with layers of intelligent nodes that process and learn independently or learn from each other.

Predictive AI:

- Predictive AI: Utilizes machine learning and deep learning to generate statistical data, analysis, and predictions.

Generative AI:

- Unlike traditional AI, generative AI can create new content from learned data. It is particularly useful in banking, acting as a smart assistant that can compile and interpret reports and memos based on written requests through chatbots or scripts, but also has many other useful applications.

5. Added Value of Generative AI vs Predictive AI for Banks

Generative AI complements predictive AI by offering a range of use cases that merge logic and creativity from identification to action. It represents an evolution of traditional AI, providing expanded opportunities and new challenges to be addressed. See below few Generative AI examples that are relevant for banks, in practical terms and outcomes to spot the difference in between AI or predictive AI and Generative AI.

Application type	What AI & Predictive AI do	+ what Generative AI does
Analyzing code quality to plan development, testing and fixing	Analyzes and recognizes working and faulted code patterns and snippets, predicts the probability of bugs.	Generates code snippets to fix the faulted ones, generates syntax, structure. Generates reports on code quality in a readable format. Interprets and explains in generic terms the bugs and fixes.
Code re-writing for the purpose of fixing security vulnerabilities	Analyzes, identifies obsolete code/functions, spots and predicts vulnerabilities.	Generates code that displaces the other code, to fix vulnerabilities, test and iterate. Generate reports for both coders and managers.
Preventing payment fraud	Detects fraud in real time, even complex ones, reducing false positives, and blocks payments. Creates risk profiles for customers. Forecasts credit default risks by looking at past payment behaviors.	Improves the algorithm by creating more fraudulent scenarios, uses synthetic data to simulate and fine-tune existing fraud detection systems, generates on the go tailored reports for supervision.
Internal document management such as risk assessments	Finds outdated or not deployed reported mitigations per service type and according to risk levels.	Alerts assigned Managers by summarizing what mitigations to update, highlights and summarizes how this affects the overall project risks.
Generating a credit score for a loan	Gathers and analyzes different sets of structure and unstructured data to be compared with the applicant's data.	Interacts with the agent explaining the reasons/rationales behind the scoring. Generates tailored and empathetic response aimed at the applicant.

6. Type of Applications and Risk Model

6.1 Generative AI Application Types and Risk Levels

We propose a framework that categorizes Generative AI applications based on various risk models. These models evaluate whether the data is customer-related, which entity processes the data (the bank or a third party), and the origin of the customer data (internally owned by the bank or external). The categories are as follows: Engineering Generative AI, Enterprise Generative AI (with or without customer data, utilizing bank and/or external data sources), and Customer-facing Generative AI (using bank or external data sources).

Additionally, there are risks associated with the bank relying on public, external Large Language Models (LLMs) hosted on external platforms, as opposed to developing their own private Language Model (LM) or using a pre-trained LLM on-premises. We will address the use of Learning Models and the associated risks later in this document.



LOW RISK
MODEL

Type of Banking GenAI	Application/service examples			
Engineering GenAI	Generating code	Code line replacement from legacy	Migration towards low code	Documenting legacy code
Enterprise GenAI -no customer data	Internal projects, risks and assessments	Comparing and producing procurement agreements	Comparing financial statements	Assisting with financial audits, re-audits
Enterprise GenAI -customer data -internal source	Instant payment fraud detection	KYC, screening (internal)	GDPR, subject access request	Internal compliance, reporting, monitoring
Enterprise GenAI -customer data -internal and external sources	Fraud detection, screening (3rd party Regtech)	Loans, mortgage help to decisioning (external credit assessment)	Underwriting by a 3rd party Insurance agent	Bank's Wealth Management
Customer facing GenAI-internal data source	Bank app; smart Bot for customer support	Bank app; robo investment advisor	Bank app; non collateral loan, automated decisioning	Bank app; non life insurance, automated decisioning
Customer facing GenAI - internal and external data sources	Merchant; tailored finance on checkout	Car manufacturer: tailored insurance	3rd party mobile wallet; tailored BNPL	3rd party Wealth Management

HIGH RISK
MODEL

The table above provides a snapshot of applications or service examples, highlighting the basic risks and complexities. It offers insights that propel our discussion into the next chapter, focusing on the concerns bank executives currently have regarding specific applications of Generative AI.

7. A Look at Some of our Generative AI Customer Deliveries

Earlier in this document, we examined several AI and Generative AI applications. Let's delve deeper into a few specific cases to uncover their value from a bank executive's perspective. Here comes a few insights from our experience in deploying Generative AI for our customers, in the fields of code generation and customer experience.

7.1 Code Generations

One of our clients leveraged Generative AI for diverse code generation tasks. Specifically, we deployed a solution on Google Cloud that transformed natural language into SQL queries, extracted data from SQL databases, and formatted results for customer-facing agents. This streamlined processes, boosting agent productivity and enhancing customer satisfaction. We at Samlink tested code generation to support migration between technologies (different SQL variants) and we found out that our developers were producing more code, were able to validate and review their code more efficiently.

Here are a few more practical benefits to using Generative AI in coding:

Generative AI in Code	Benefits
Generating code, code line replacement from legacy	<ul style="list-style-type: none">Validates the code quality.Reduces human errors especially when migrating to new programming frameworks. While part of code generation and migration is left to AI, coders can focus on more complex tasks.Development process: sprint time and application releases are done faster.Code standardized facilitates updates.Operational risks associated with system failure are decreased, which reflects in less downtime.
Migration towards low code	<ul style="list-style-type: none">Speeds up application development.More cost-efficient integration with other platforms or systems.Cost efficient and less specialized coders can operate low-code platforms which leaves more experienced coders to handle tailored complex coding.
Documenting legacy code	<ul style="list-style-type: none">Generates consistent and accurate documentation reducing risks of interpretation.Translates code snippets into understandable format/language that can be read by developers and managers with different levels of knowledge and expertise.

7.2 Better Customer Experience

We have also helped one of our clients build a Generative AI based response solution using Azure Open AI for message classification and sentiment analysis. It provided a multi-language response over multiple social networks to ensure a better customer experience and enhance brand loyalty.

Here comes a few more practical benefits to using Generative AI to enhance customer experience:

Generative AI enhancing customer experience (CX)	Benefits
Creates engaging and relevant content, offers, and recommendations	Enhances customer satisfaction, retention, and trust
Creates realistic and interactive chatbots and voice assistants	Reduces operational costs and workload for human agents
Personalizes financial advice and guidance	Increases customer value and conversion rates
Tailors marketing campaigns and promotions	Sells the right financial product at the right time
Creates dynamic and responsive websites and apps	Provides customer centric experience on the bank application
Optimizes pricing and product design	Increases customer value and conversion rates
Improves customer service and support	Enhances customer satisfaction and loyalty
Creates realistic avatars and personas	Provides a more engaging and human-like customer experience
Detects customer sentiment and emotion	Provides appropriate responses and solutions

Indeed, for one of our banking customers, we also developed a Generative AI chatbot which can be queried based on the customer requests and for which relevant product information is retrieved, which is further used by the customer facing agent to help the customer efficiently and quickly. This resulted in better response time, better response accuracy, and a customized customer experience.

8. Concerns and Predictions for a Brighter Future

8.1 The Concerns the Banks Have in 2024

Based on the previously mentioned Generative AI model categories, let's explore the planning and deployment of these applications from a bank's perspective, addressing their current concerns for each type.

1. Transparency for Accountability and Ethics

Ensuring that data processing adheres to established ethical standards and is transparent enough to explain the decision-making process and outcomes.

2. Data Source, Quality, volume, security

Assessing the data's source, accessibility, sufficiency for training machine learning models, completeness, and overall quality. Ensuring data security at any stage of the process.

3. Algorithm Maturity

Evaluating the maturity, stability, and reliability of machine learning algorithms, including their market references and the volume of data they have been trained on.

4. Results Accuracy

Determining the accuracy and reliability of the results produced by the algorithms.

5. Financial Liability

Understanding the bank's liability when using Generative AI and identifying other potential liabilities beyond financial ones.

6. IPR Infringement

Considering whether the use of Generative AI in a particular application could risk infringing intellectual property rights related to algorithms, models, data, content, code, or other proprietary assets.

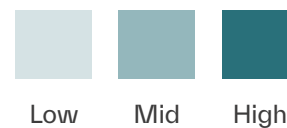


The following table outlines the levels of concern a bank may have when considering a Generative AI application. These concerns are meant to facilitate a dialogue with the bank, prompting specific questions from the outset, which could be for instance:

- How can transparency and accountability be translated into a format that is understandable and reportable for specific stakeholders?
- What data, sources, and quality are currently possessed, and are they adequate for training a model to yield accurate and trustworthy outcomes?
- How bias are the models used and the data entered in the first place, are ethical is it?
- Which commercially available algorithms and models are suitable for efficient credit scoring, and how mature are they?
- Can we trust the machine's results, and which predictions are reliable?
- What are the potential costs to the bank if the application fails?
- How will the resilience testing of a Generative AI model from a DORA perspective be carried out?
- How will the model and decisions made be stored and can it be restored if storage and operating fail?
- Can we ensure that our actions will not infringe upon any intellectual property rights?

The concerns the Banks have about Generative AI, 2024

Levels of concerns:



Type of Banking GenAI	Application/ service examples	Transparency for accountability, ethics	Data source, quality, volume, security	Algorithms and models maturity	Results accuracy	Financial liability	IPR infringement
Engineering GenAI	Code line replacement	Low	Mid	Mid	Low	Low	Mid
Enterprise GenAI -no customer data	Assisting with financial statements	Mid	High	Mid	Mid	High	Mid
Enterprise GenAI -customer data-internal source	Detecting, blocking A2A Instant Payment fraud	Mid	High	High	High	Low	Mid
Enterprise GenAI -customer data-internal and external sources	Automated assessment of credit risk, BNPL	High	High	High	High	Low	Mid
Customer facing GenAI-internal data source	Bank app; non collateral loan, automated decisioning	High	High	High	High	High	Low
Customer facing GenAI-internal and external data sources	Market place hyper-tailored client offering, smart bot	High	High	High	High	High	High

8.2 A Brighter Future for Generative AI Banking Thanks to Regulation

Banking regulation is evolving from a challenging and costly obligation into a catalyst for security and business growth. It will enable a common secure platform for more equal competition between the banks and other players. The bank executives in Europe are envisioning a more reliable and more robust ecosystem that will enable operations to be conducted in a safer and more standardized manner, thanks to regulation.

The Key Enablers for deploying Generative AI in Banking are:

1. AI Act

This act will govern the implementation of AI across Europe, introducing standard rules for all stakeholders.

2. Vertical AI Guidelines

The use of AI will be subject to more detailed guidelines from various organizations.

3. Machine Learning Maturity

The industry-specific machine learning algorithms and models are expected to mature due to their proliferation.

4. Data Act

This act will regulate how businesses will exchange data within the European Economic Area.

5. Data Volume and Accuracy

As data sets expand, the precision of the outcomes is expected to improve.

6. IPRED

The Directive on the Enforcement of Intellectual Property Rights will enforce all the IP rights across the EU.

7. Payment Service Regulation (PSR)

This regulation will enable Payment Service Providers (PSPs) to exchange data on frauds. PSPs will also be required to assess more operational and security risks, implement mitigations, and report them.

8. Payment Service Directive 3 (PSD3)

This directive will enhance the application of strong customer authentication, IBAN verification, and facilitate Payment Institutions and Electronic Money Institutions' access to payment systems, among other requirements.

9. Financial Data Access (FIDA)

This regulation will enable Financial Institutions and merchants to exchange customer financial data via licensed intermediaries known as Financial Information Service Providers (FISPs).

10. Resilience through DORA

All financial institutions will implement DORA, enhancing their own resilience and adopting a more comprehensive ICT risk management approach for planning and deploying applications, projects, and their use of third parties.

11. EIDAS

Each European citizen will have a free EUDI (EU Digital Identity) wallet at their disposal for identification and strong authentication, enabling safe access and use of public and private services, including banking services, throughout Europe.

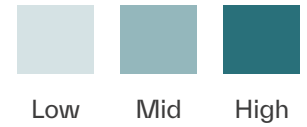
Our role at Samlink Advisory is to assist bank executives in recognizing and seizing opportunities. We guide them through complex decisions to strategize and implement their Generative AI initiatives.

We engage with our clients to help them identify the right questions to ask, for instance;

- Regulatory Impact by 2028: what concerns will be alleviated due to upcoming regulation?
- Influential Regulations: which initial regulation will significantly affect the bank's business and reduce the risk associated with piloting and deploying selected Generative AI applications?
- Key External Factors: what are the crucial external factors that will help reduce the bank's risks and interdependent risks?
- Strategic Positioning: considering the bank's core competencies and offerings, what is the anticipated position in domestic and international markets (in Europe) by 2028 of each of the bank's financial product and service, and how will Generative AI contribute to achieving the bank's growth strategy?
- Generative AI Applications: What specific enterprise Generative AI applications should be planned for, anticipating early readiness within the bank and its ecosystem?

The key enablers to adopt and deploy Generative AI

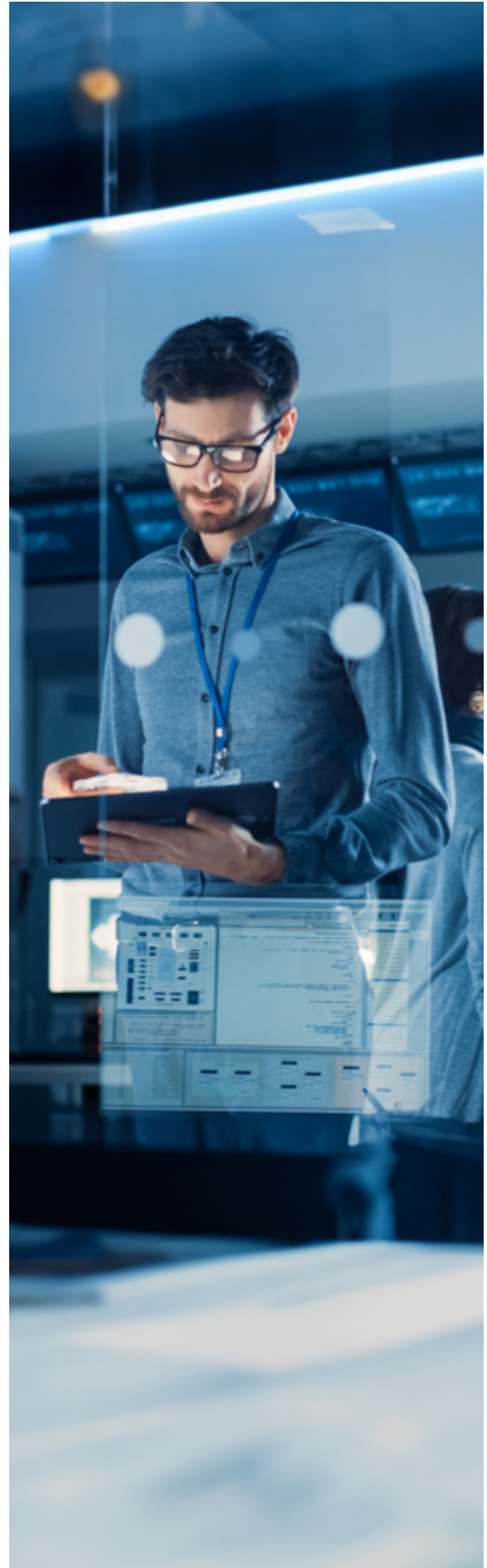
Levels of concerns:



Type of Banking GenAI	Application/ service examples	Transparency for accountability, ethics	Data source, quality, volume, security	Algorithms and models maturity	Results accuracy	Financial liability	IPR infringement
Engineering GenAI	Code line replacement						
Enterprise GenAI -no customer data	Assisting with financial statements	Ai Act		Public MML maturity, industry specific	Volumes		IPRED
Enterprise GenAI -customer data-internal source	Detecting, blocking A2A Instant Payment fraud	Ai Act	Data Act, DORA	Performance /accuracy ratio outperforms manual. More private LLMs	Volumes	PSR	
Enterprise GenAI -customer data-internal and external sources	Automated assessment of credit risk, BNPL	Ai Act	Data Act, DORA	More private LLMs	Volumes	PSR	
Customer facing GenAI-internal data source	Bank app; non collateral loan, automated decisioning	Ai Act	Data Act, DORA, EUDI, PSD3	More private LLMs	Volumes	FIDA	
Customer facing GenAI-internal and external data sources	Market place hyper-tailored client offering, smart bot	Ai Act	Data Act, DORA, EUDI	Hybrid public and private LLMs	Volumes	PSR FIDA	IPRED

The above features our vision when it comes to how much key enablers, in the future, notably issued from regulation will decrease the bank's concerns, help faster adoption and deployment of more complex Generative AI applications, either they be focusing on productivity or growth or both.

The above table is meant to initiate and facilitate a dialogue with the bank and help plan and implement its Generative AI strategy.





9. Regulation of AI

9.1 The (European) AI Act

Approved by the European parliament, the AI Act (adopted text) is to:

“improve the functioning of the internal market by laying down a uniform legal framework in particular for the development, the placing on the market, the putting into service and the use of artificial intelligence systems (AI systems) in the Union...”

The revised text outlines the requirements for banks regarding AI deployment, which includes fundamental rights impact assessment, updates and notifications of the assessment, the categorization of banks and insurance companies as high-risk, and the mandatory measures for the banks as they will be providing and deploying AI systems. Among these measures are adequate risk assessment and management practices.

These requirements, issued by the AI Act, are substantial. However, banks are well-equipped to comply with them due to their well-established risk management practices.

9.2 How Other Continents Look at AI Regulation

AI regulations are rapidly evolving worldwide, with diverse approaches across countries and regions.

Let's explore how major players are shaping the landscape:

- **European Union (EU):** The EU is at the forefront of AI regulation. The EU's Artificial Intelligence Act aims to ensure that AI is trustworthy, human-centric, and aligned with fundamental rights.
- **China:** China emphasizes national standards and guidelines. The New Generation Artificial Intelligence Governance Principles prioritize human dignity, fairness, justice, and security in AI applications.
- **United States (US):** The US takes a decentralized and sector-specific approach. Existing laws and regulations address AI challenges and opportunities. The White House's Executive Order on AI promotes innovation, competitiveness, and public trust. While the US seems to lack a systematic AI regulatory framework, the authorities recognize the need to address bias and discrimination within existing legal structures.

- **Australia:** Australia leverages existing frameworks and laws. Public papers and communities provide recommendations and best practices for AI governance.
- **Brazil:** A recent bill in the Brazilian federal senate imposes obligations on businesses using AI systems. It aims to build guardrails around AI accessibility and user rights, including informed consent, privacy, and non-discrimination.

AI transcends national borders, impacting human rights, international trade, security, and governance. International organizations and initiatives, such as the OECD Principles on AI, the Global Partnership on AI, and the UN High-Level Panel on Digital Cooperation, foster dialogue, and consensus-building for the common good. In this dynamic landscape, striking the right balance between regulation and innovation remains crucial for harnessing AI's potential while safeguarding societal interests.

10. How to Prepare and Change the Organization

Generative AI is a transformative technology that will reshape business operations and enhance customer value. However, its adoption is complex, necessitating substantial shifts in an organization's culture, processes, skills, and mindset. Thus, effective change management is essential for a seamless transition to Generative AI.

Debates and uncertainties persist regarding Generative AI's impact on employment, the need for reskilling, and the perception of change as a risk rather than an opportunity. Additionally, there are challenges in training, organizational support, documentation, policymaking, and communicating the pros and cons of Generative AI. Identifying resistance to change and determining applicable use cases are also critical.

In today's rapidly evolving technological landscape, collaboration is key to success. The surge in interest for Generative AI use cases necessitates aligning technology with organizational personnel to fully realize the anticipated benefits.

We have built and trained an organization with highly motivated personnel given specific roles, responsibilities, tasks, and documented process, while going through the following steps:

- 1. Goal Setting:** Clearly outline your objectives with Generative AI, aiming for improvements in productivity, customer satisfaction, and teamwork. Among these goals settings, define the complete ecosystem, both internal and external stakeholders.
- 2. Tracking Progress:** Regularly update and share progress with your team to maintain alignment and motivation.
- 3. ROI Analysis:** Assess the necessary investments such as tool licenses and training and define KPIs to measure the return on investment.
- 4. Legal and risk Considerations:** Engage with legal and compliance teams early on to develop ethical, secure, and private internal policies, ensuring all stakeholders are informed and prepared.
- 5. Training:** Implement training progressively, combining it with hands-on experience and open communication to foster collaboration.
- 6. Implementation:** During the critical stages of proof of concept and final rollout, focus on commercial investment, user experience, and documenting feedback and recommendations.
- 7. Monitoring:** Keep a close watch on predefined KPIs to gauge the impact and value generated during implementation.
- 8. Scaling Up:** After initial success, evaluate the potential for broader application of the technology, and manage the expansion by building on the established successful foundation.

Additionally, and to keep our personnel on course, we have also applied the following guidelines:

1

Start Small: Begin with a carefully chosen use case.

2

Build Confidence: Develop success stories to foster trust.

3

Celebrate the wins, reward individuals and teams.

4

Embrace Change: Position Generative AI as a beneficial opportunity rather than a concern.

This approach will help ensure a smooth and positive transition to incorporating Generative AI applications, step by step, learn and improve on the way.

11. Gen AI Ecosystem for Banks

Adopting generative AI in the banking industry necessitates the creation of a robust and trusted ecosystem involving multiple stakeholders. The initial identification and positioning of this ecosystem is essential notably during the goal setting phase (see above).

There are five primary elements to evaluate when establishing the business objectives initially:

1. Technology Provider

- Provides necessary hardware, software, platforms, and tools for developing, deploying, and monitoring AI solutions. For instance, companies like NVIDIA offer cloud services to the banking industry.
- Avoid vendor lock-in and ensure interoperability. Banks should always diversify their technology sources and consider alternative solutions.

2. Data Source

- Data serves as the foundation for AI model training and improvement, sourced from internal databases, external partners, or synthetic data.
- Banks must maintain data quality, privacy, and security, ensuring compliance with regulations.
- Establishing data governance frameworks and leveraging techniques like data encryption and federated learning is essential.

3. Regulators

- Set standards and guidelines for AI in banking, ensuring solutions are safe and aligned with societal goals.
- Define legal and ethical frameworks, monitor AI impacts, enforce compliance, and promote public awareness and education.

4. Customers

- As end-users, their feedback influences AI innovation in banking. They include consumers and businesses using bank services with AI.
- Customers provide essential input for AI content creation and express their views on the quality and fairness of AI-generated content.

5. Partners

- Collaborators or competitors offering complementary AI solutions, creating new market opportunities.
- Engage in cooperation or competition, enhancing AI solution quality and exploring new value propositions across industries. They also challenge and shape the future of AI in banking.



12. Private or Public LLM for the Bank

Many banks are contemplating the kind of Large Language Models (LLMs) to use, considering the associated risks, dependencies, performance, limitations, and costs.

An LLM (Large Language Model) is a sophisticated neural network capable of generating human-like text based on provided inputs such as prompts, queries, or contexts. These models are trained on extensive data from diverse sources like books, news articles, social media content, and web pages. They can execute a variety of natural language tasks, including text summarization, machine translation, question answering, text generation, and sentiment analysis.

LLMs can be categorized into different types:

- **Public LLMs:** These are pre-trained models that are widely accessible for use. Examples include GPT-4, BERT, XLNet, Claude, Llama, and others. Public LLMs can either be open-source or provided by a vendor in an as-a-service model.
- **Private LLMs:** These are custom models developed by an organization for a specific purpose, utilizing its own data and infrastructure resources. The organization retains proprietary ownership of these LLMs. A private LLM might be fine-tuned from a public LLM or trained from scratch in a more controlled or owned environment.
- **Small Language Models (SLMs):** While not as capable as LLMs, SLMs are more cost-effective and easier to fine-tune for specific purposes.

The decision whether a bank should build a private LLM or use a public LLM depends on several factors, such as;

1. Data Availability and Quality

- A private LLM requires a substantial volume of high-quality, relevant data for training and optimization. If a bank possesses such data, it could benefit from constructing a private LLM that captures the domain-specific knowledge and terminology of the banking sector.
- However, if the data is limited, noisy, or obsolete, the private LLM might underperform or introduce biases and errors. In this scenario, a public LLM, trained on a diverse and current text data corpus, might be a superior alternative.

2. Data Privacy and Security

- A private LLM provides enhanced control and protection over the data used for training and operating the model. A bank can ensure data encryption, anonymization, and secure storage.
- A public LLM, however, could present data privacy and security risks, as the data could be exposed to third parties or malicious entities. Furthermore, a public LLM might retain some traces of the queried data, potentially disclosing sensitive information about the bank or its clients.

3. Cost and Scalability:

- A private LLM demands significant computational power and storage capacity for model training and deployment. A bank might need to invest in costly hardware and software infrastructure and employ skilled personnel for model maintenance and updates.

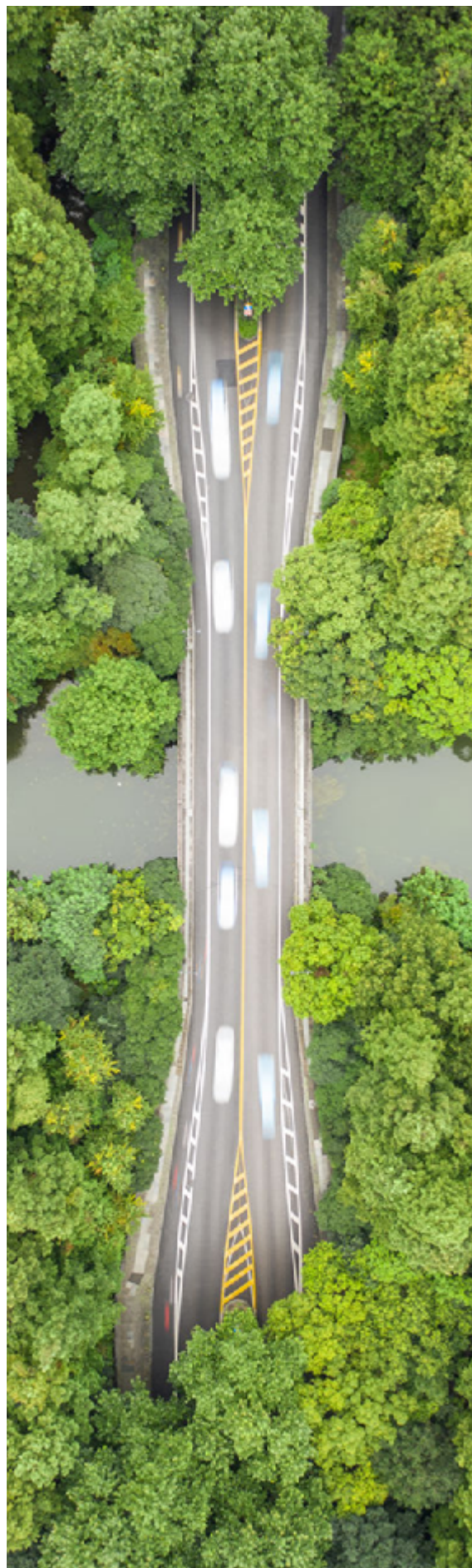
- In contrast, a public LLM could lower the cost and complexity of building and operating an LLM, as the model is hosted and managed by a service provider like OpenAI or Google. A bank can access the model via an API or a cloud platform and pay only for the usage and resources.

4. Performance and Accuracy:

- A private LLM might offer superior performance and accuracy for the bank's specific tasks and scenarios, as the model is customized to the banking domain and the bank's goals.
- A private LLM might also be more adaptable and flexible to the bank's evolving needs and customer preferences.
- On the other hand, a public LLM might deliver lower performance and accuracy for banking tasks, as the model is generic and not optimized for the banking domain.
- A public LLM might also be less reliable and consistent, as the model might change or update without the bank's awareness or approval.

To sum up, the choice between a private or public Large Language Model (LLM) for a bank isn't clear-cut, as each option presents its own set of benefits and drawbacks. A bank needs to weigh the pros and cons of each choice, assessing them against its data availability, objectives, budget, and risk appetite.

A bank might also consider a blended strategy, where it uses a public LLM as a foundation and refines it with its proprietary data and parameters. Alternatively, it could use a private LLM for certain tasks and a public LLM for others. Another viable option is the utilization of LLMs in a sovereign public cloud, which could offer banks an added layer of security assurance.



13. Next Steps for Banks

Our role is to assist Bank executives in recognizing and seizing opportunities. We guide them through complex decisions to strategize and implement their Generative AI initiatives. We assist banks by providing specific and tailored accelerators. These are designed to advise the bank, help build, and scale up Generative AI applications, among other solutions.

Samlink Advisory Services redefine the future of banking with unparalleled expertise in both business and IT converge. We offer bespoke advisory and consulting services, tailored to the unique needs of your bank. Our team's extensive experience across banking operations, regulations, and technology equips us to provide strategic guidance that propels your institution forward.

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An entrepreneur at heart since 2000, Philippe has provided consultation services to numerous corporate and financial institutions, focusing on complex and high-impact programs and projects. He has managed and mentored startups and has also led an innovation lab. Within the banking sector, he has developed strategic plans, overseen accelerator programs, and implemented transformation projects in areas such as digital finance, open banking, banking regulation, wealth management, AI, and Fintech partnerships, among others. As a Senior Banking Consultant at Samlink, Philippe takes the lead on projects and employs a hands-on approach to consulting. He is well-versed in banking business, banking regulation, and digital finance technologies.



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A technology enthusiast, Vishal has worked for multinational IT organizations across APAC and EMEA markets, helping them in their digital transformation journey. He has collaborated with banks to modernize their operations and has undertaken projects to ensure business continuity, enhance customer experience, transition into a data-driven ecosystem, and maintain readiness with changing regulatory needs. Furthermore, Vishal has extensively supported multiple banking software vendors in modernizing their tech stack and creating value for their end customers. Applications, data & AI, and cloud are his key focus areas. He has been actively developing new services across the Nordics for Kyndryl and works as a client advisor/co-practice leader.

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