REIMAGINING BANKING IN THE GENERATIVE AI UNIVERSE

Abstract

The financial services industry is amid the disruptive era of Generative AI (Gen AI), which is redefining how financial services are provided to customers. Gen AI's intuitive capability to comprehend and generate human-like conversations and actions sets it apart from traditional rule-based automation and promises immense potential to transform financial services.
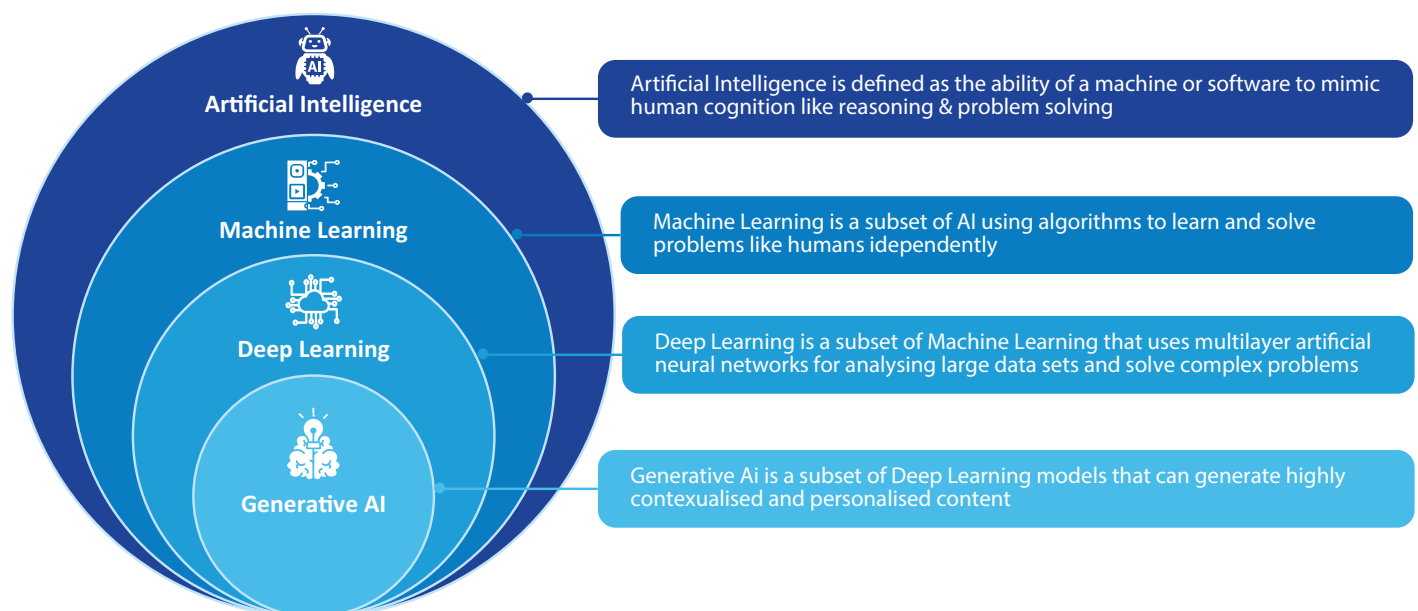
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Generative AI and its impact on the financial services industry

While the recent surge of interest in Gen AI, a subset of AI (figure 1), is undeniably captivating, a more grounded approach is necessary while implementing it in business processes. Let us turn our attention to its practical application: how can this technology create tangible value for our customers? The answer lies in how Gen AI works. While robotic process automation, chatbots, AI models, and machine learning models work on rule-based algorithms, they are tailored to specific tasks like data entry, handling routine customer inquiries, forecasting, or product customisations. Fundamentally, Gen AI transcends rule-based algorithms using large language models (LLMs) trained on enormous data sets. This enables Gen AI to process information akin to human cognition. Its ability to interpret and analyse text, images, and audio, provides relevant responses and makes it a more potent tool.

Artificial Intelligence — Artificial Intelligence is defined as the ability of a machine or software to mimic human cognition like reasoning & problem solving

Machine Learning — Machine Learning is a subset of AI using algorithms to learn and solve problems like humans idependently

Deep Learning — Deep Learning is a subset of Machine Learning that uses multilayer artificial neural networks for analysing large data sets and solve complex problems

Generative AI — Generative Ai is a subset of Deep Learning models that can generate highly contexualised and personalised content

Imagine a tool, which not just learns, but contextualises, responds, independently generates content, and can be customised to solve specific problems; the applications for such a tool are endless.

Financial organisations are realising the immense potential of Gen AI to transform their business processes leading to reduced costs, faster revenue growth, and
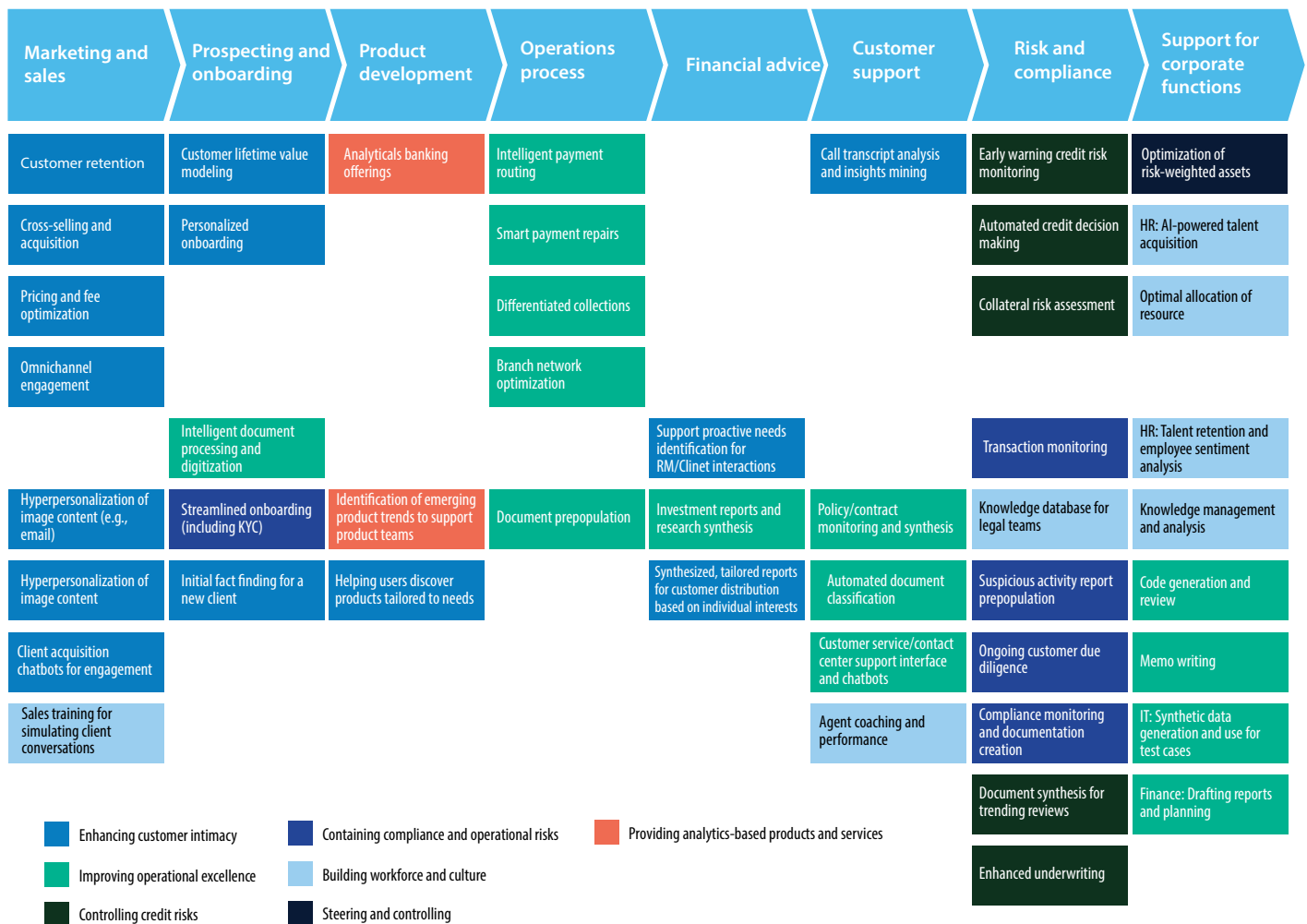
more effective contact center operations. This represents only the beginning of many more such transformations in the future.

Applications of Generative AI in banking

An independent Accenture research has shown the industry will see 30% employee productivity gains by 2028 across banking

operations, ushering in a new era of human-machine collaboration. As banks explore the applicability of Gen AI, several

use cases emerge with significant impact on process transformations, as shown in the below illustration.

Marketing and sales	Prospecting and onboarding	Product development	Operations process	Financial advice	Customer support	Risk and compliance	Support for corporate functions
Customer retention	Customer lifetime value modeling	Analyticals banking offerings	Intelligent payment routing		Call transcript analysis and insights mining	Early warning credit risk monitoring	Optimization of risk-weighted assets
Cross-selling and acquisition	Personalized onboarding		Smart payment repairs			Automated credit decision making	HR: AI-powered talent acquisition
Pricing and fee optimization			Differentiated collections			Collateral risk assessment	Optimal allocation of resource
Omnichannel engagement			Branch network optimization				
	Intelligent document processing and digitization			Support proactive needs identification for RM/Clinet interactions		Transaction monitoring	HR: Talent retention and employee sentiment analysis
Hyperpersonalization of image content (e.g., email)	Streamlined onboarding (including KYC)	Identification of emerging product trends to support product teams	Document prepopulation	Investment reports and research synthesis	Policy/contract monitoring and synthesis	Knowledge database for legal teams	Knowledge management and analysis
Hyperpersonalization of image content	Initial fact finding for a new client	Helping users discover products tailored to needs		Synthesized, tailored reports for customer distribution based on individual interests	Automated document classification	Suspicious activity report prepopulation	Code generation and review
Client acquisition chatbots for engagement					Customer service/contact center support interface and chatbots	Ongoing customer due diligence	Memo writing
Sales training for simulating client conversations					Agent coaching and performance	Compliance monitoring and documentation creation	IT: Synthetic data generation and use for test cases
						Document synthesis for trending reviews	Finance: Drafting reports and planning
						Enhanced underwriting	

- ■ Enhancing customer intimacy
- ■ Improving operational excellence
- ■ Controlling credit risks
- ■ Containing compliance and operational risks
- ■ Building workforce and culture
- ■ Steering and controlling
- ■ Providing analytics-based products and services

While the scale of Gen AI's impact is intriguing and worth a discussion, however, we will delve into a few specific functions to gain a deeper understanding of how it adds a distinct advantage.

Contact centre transformation: Gen AI models like transformers and variational autoencoders (VAEs), can be trained through natural language processing (NLP), natural language understanding (NLU),

and natural language generation (NLG) to analyse customer sentiment and engage in intelligent, empathetic conversations, helping transform the first line of connect for customers engaging with

contact centres. This results in experiences akin to speaking with a human, making them superior virtual assistants, and providing a far more fulfilling customer experience than current options. Unlike traditional virtual assistants that struggle with context and limited responses beyond basic queries, Gen AI can make a difference. By interpreting customer needs and moods, it personalises responses, leading to far less frustration and a more human-like experience for customers seeking help.

Case in point, many elderly customers find it challenging to navigate the complex world of digitised contact centres. Gen AI, with its human-like interactions, could be a valuable tool in addressing this challenge. As a contact centre enabler, it can be leveraged to create custom gaming models or cognitive exercises to aid the elderly in navigating the complexities of digital banking. The models can also be enhanced with voice recognition and behavioural patterns to bolster security and fraud prevention.

Financial crime prevention and risk management: Several tasks, like document analysis, data handling, financial analysis, KYC-AML compliance, and knowledge management, significantly contribute to back-office operations. Gen AI can streamline these operational processes with seamless human-machine interactions as required. Here are some ways Gen AI can achieve this:

a) Fraud detection: Gen AI uses advanced Generative Adversarial Networks (GANs) and variational autoencoders (VAEs), to create and analyse synthetic data via a generator and a discriminator to train the AML systems to identify and detect sophisticated frauds. It can sieve through vast amounts of transactional and other relevant data, to identify patterns and anomalies swiftly. This can significantly aid analysts in their investigations, leading to faster and more accurate detection.

b) Effective risk management: The sheer volume and complexity of financial data from diverse portfolios make real-time risk assessments challenging and often ineffective. However, custom-built Gen AI models leveraging techniques such as long short-term memory networks (LSTMs), transformers, and Bayesian networks can process time-series data, identify complex data relationships, and make probabilistic predictions. They can churn large and complex data sets and calculate value-at-risk estimations through forecasting, alternative data scoring, and creating possible market stress scenarios to assess the portfolio's resilience. This enables banks to foresee market trends and adapt their investment strategies, minimising potential losses due to volatility. These models can also read, analyse, and summarise legal contracts, ensuring enhanced compliance with terms and conditions. By automating these tasks, Gen AI frees up analysts' time, allowing them to be in line with the ever-changing regulatory and compliance norms.

Below are some of the leading banks pioneering the use of Gen AI:

Bank	Use case
JPMorgan Chase	IndexGPT is an AI service for investment advice to help its customers understand how and where to invest money in a better way.
Barclays	Detecting fraudulent transactions and improving compliance with regulations
Citi Group	Citi is examining ways to use Gen AI to analyse documents and generate content.

As is evident, the applications of Gen AI as a transformative tool are endless. While the applicability will only increase with time to drive growth and productivity, it brings its own set of risks.

Potential risk of generative AI

There are concerns about the use of Gen AI all over the world, ranging from biased models to data security and privacy. Gen AI's future will be defined by how banks respond to these concerns.

For its long-term sustainability, banks must ensure transparency, audit trails, customer consent and adequate human oversight to tackle bias and inspire confidence in all stakeholders. While guidelines and standard practices are still being formulated, banks can proactively implement their ethical guidelines and standards for the use of Gen AI, keeping in line with broad regulatory guidelines.
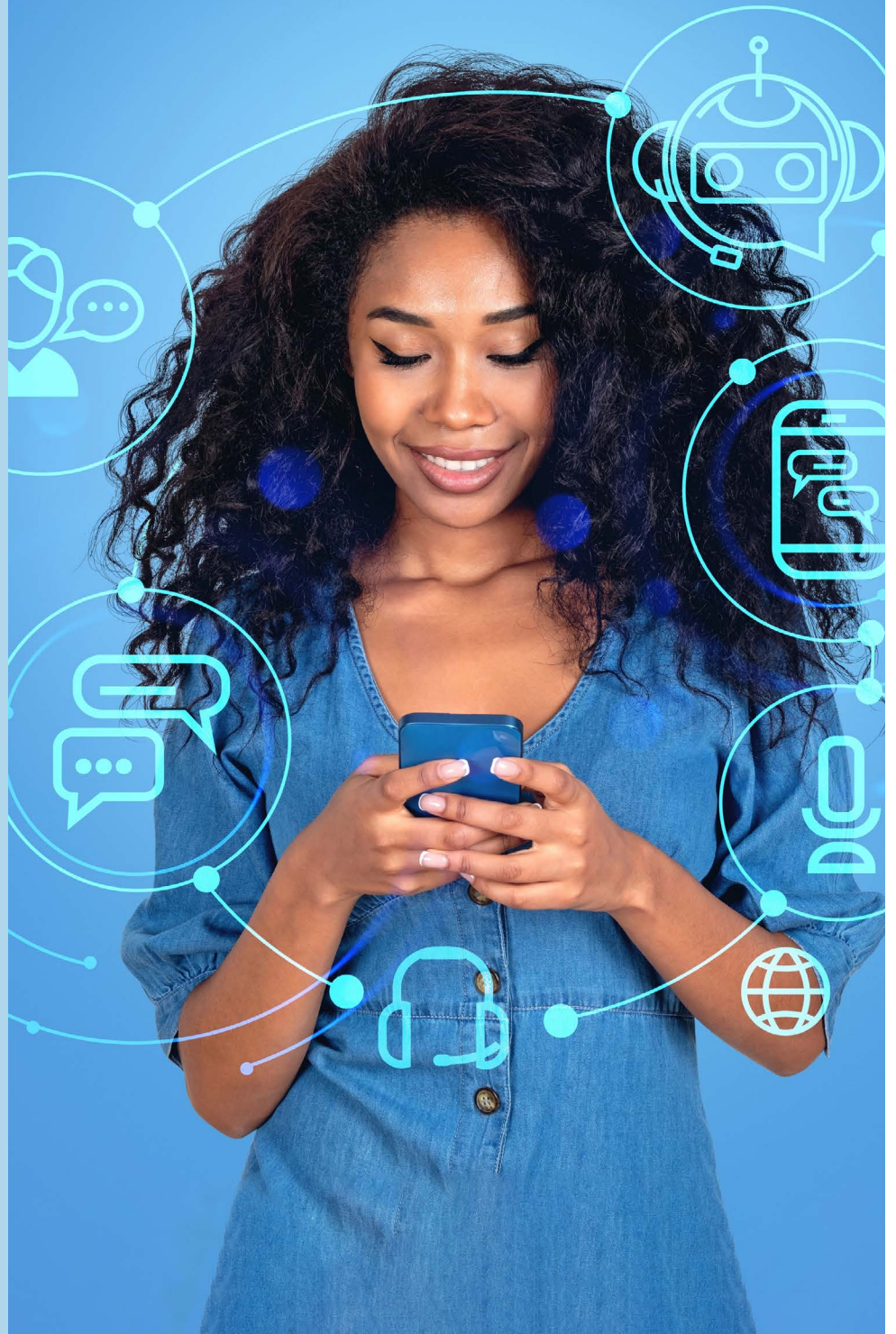
Adoption blueprint

While everyone wants to hop on the Gen AI bandwagon, banks must be careful in selecting the right adoption strategy and balancing risk and returns. Below are the broad guidelines that can help businesses chart out their path in the Gen AI adoption:

Organisational readiness: Successful Gen AI adoption requires leadership and stakeholder alignment on potential risks and returns. This necessitates reevaluating the existing AI adoption roadmap in light of the current technology landscape and the ability to make the right changes, ensuring continuity with low disruption.

Balanced approach: Banks need to critically review their AI use case prioritisation for short, medium, and long-term implementation. Experimenting with quick-win cases can serve as a proof of concept and gauge organisational readiness for scaled adoption. This rapid prototyping, coupled with an effective strategy aligned with long-term transformation goals will make them future-ready.

Selecting the right technology partners: Rigorous evaluations of partner capabilities in data privacy, security, scalability, and cost are necessary to determine strategic fit.

An illustrative view on the Gen AI adoption across industries in Europe and the Americas.
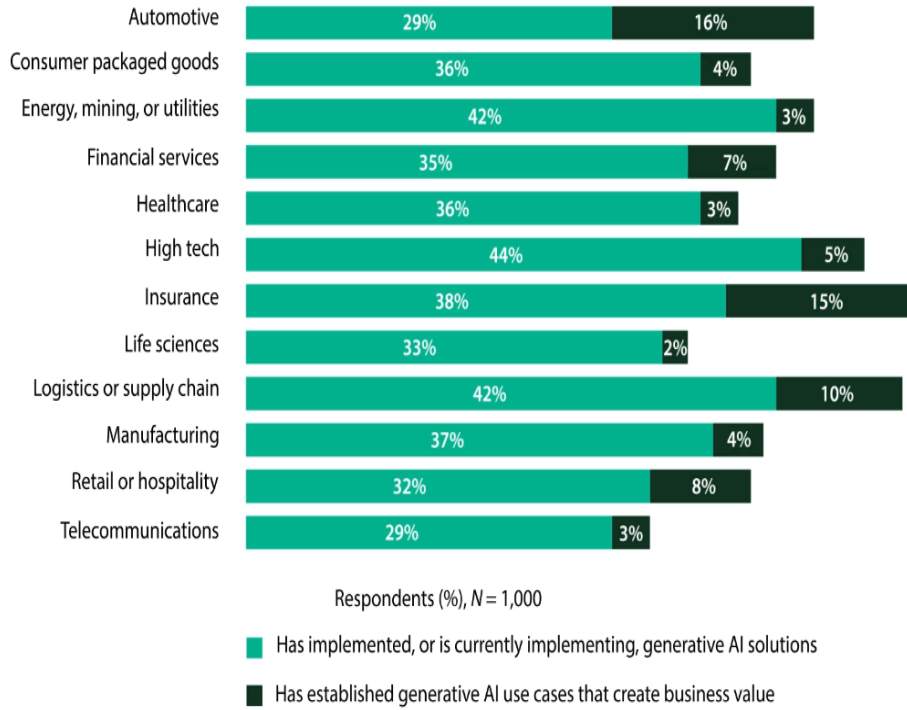
Sector	Has implemented, or is currently implementing, generative AI solutions	Has established generative AI use cases that create business value
Automotive	29%	16%
Consumer packaged goods	36%	4%
Energy, mining, or utilities	42%	3%
Financial services	35%	7%
Healthcare	36%	3%
High tech	44%	5%
Insurance	38%	15%
Life sciences	33%	2%
Logistics or supply chain	42%	10%
Manufacturing	37%	4%
Retail or hospitality	32%	8%
Telecommunications	29%	3%

Respondents (%), *N* = 1,000

- Has implemented, or is currently implementing, generative AI solutions
- Has established generative AI use cases that create business value

Figure 3 Gen AI adoption & business value by sector (Europe)

Sector	Has implemented, or is currently implementing, generative AI solutions	Has established generative AI use cases that create business value
Automotive	29.6%	22.5%
Consumer packaged goods	28.0%	15.1%
Energy, mining, or utilities	21.1%	21.1%
Financial services	31.6%	23.5%
Healthcare	52.4%	15.5%
High tech	29.2%	24.6%
Insurance	39.4%	10.6%
Life sciences	41.9%	14.0%
Logistics or supply chain	17.7%	1.6%
Manufacturing	21.3%	18.5%
Retail or hospitality	20.9%	2.2%
Telecommunications	30.6%	16.1%

Respondents (%), *N* = 1,000.

- Has implemented, or is currently implementing, generative AI solutions
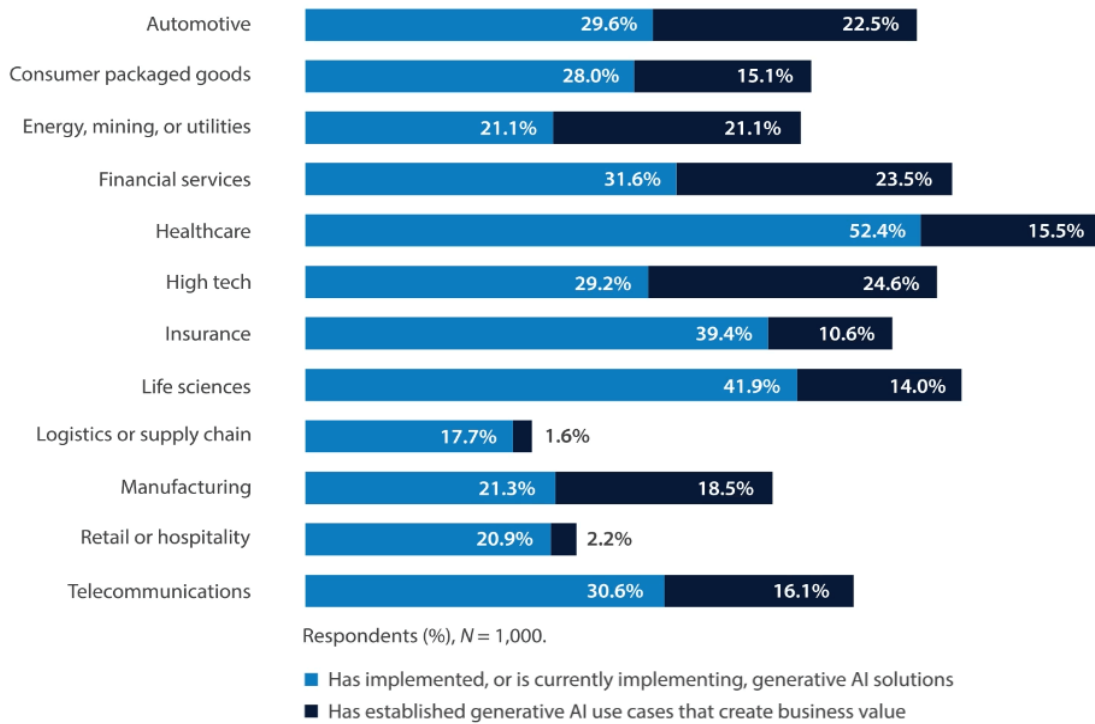- Has established generative AI use cases that create business value

Figure 3 Gen AI adoption & business value by sector (Europe)

While organisations explore various applications of Gen AI, three areas hold immense potential for transformative impact: fraud detection, customer service, and knowledge management. Gen AI's capabilities of detecting sophisticated fraud in real-time, generating hyper-personalised text, and creating contextualised content make it ideally suited for these functions, offering significant value creation potential. Early adopters in these areas are likely to gain a competitive advantage by harnessing the power of Gen AI to revolutionise their operations.

Authors

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Subhro is a consultant with 10+ years of industry experience in the financial services and banking domain. His core areas of expertise are program management, digital transformation, and business analysis across retail and wholesale banking. Subhro has driven various initiatives and complex large-scale programs across retail banking (account services) and wholesale banking (forex and corporate services) processes. His current role involves working on consulting engagements in the banking domain and leveraging technology to improve operational efficiency and user experience.

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