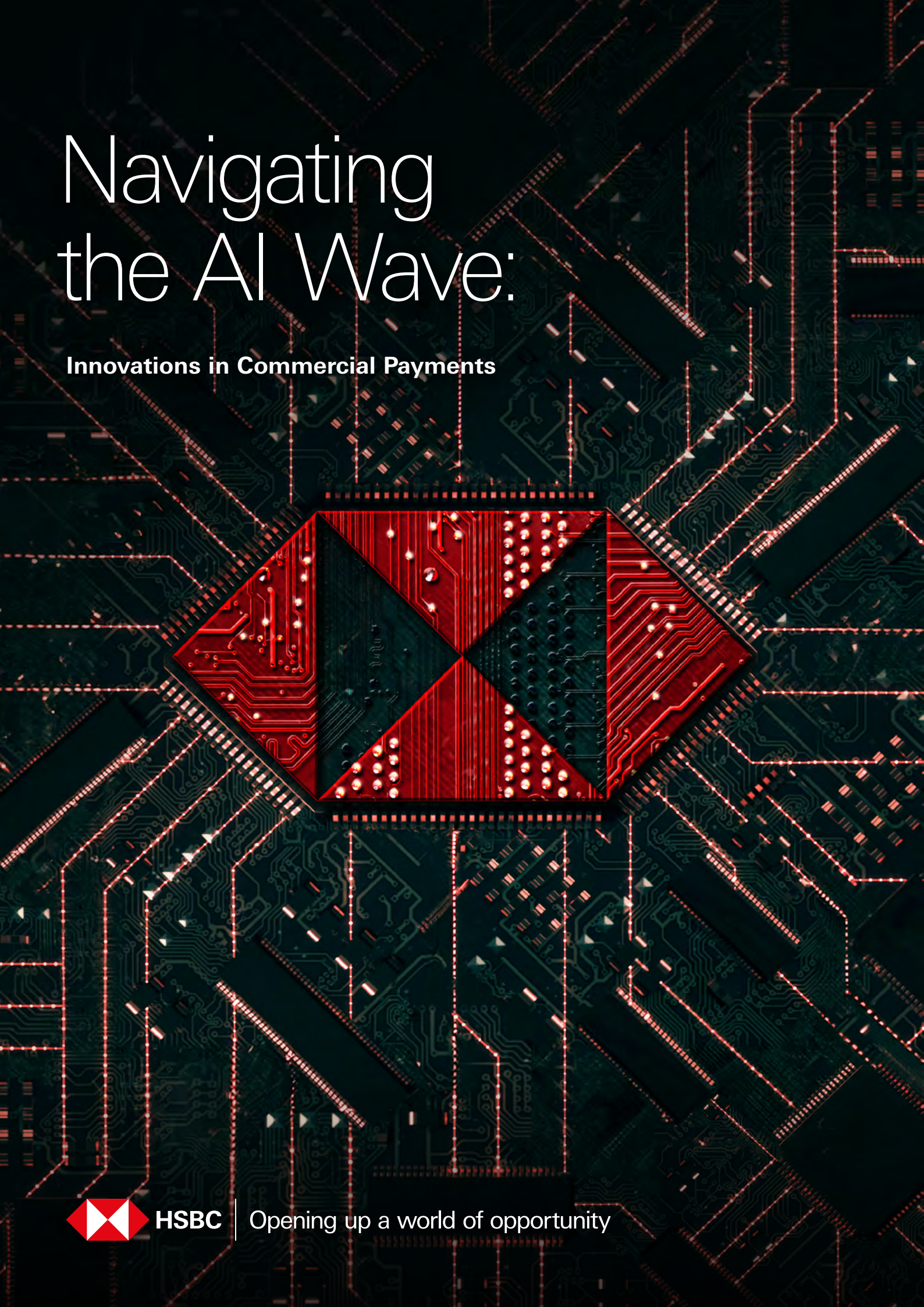
Navigating the AI Wave:

Innovations in Commercial Payments



HSBC | Opening up a world of opportunity

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Foreword

Corporate Treasurers are becoming more aware of the power of AI and the potential impact to their business. Yet, for the value of AI to be realised, various changes are required in their organisations. At HSBC, we are committed to supporting our clients through this transformative journey. We envision a future where AI technology is seamlessly integrated into our payments solutions to create value for our clients, making transactions smarter, faster, and frictionless.

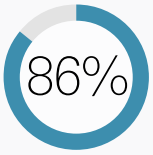
Manish Kohli,
Head of Global Payments Solutions, HSBC

Introduction

The transformative power of Artificial Intelligence ("AI") has ignited the imagination of business leaders, inspiring visions of accelerated growth and innovation. In a HSBC survey[1], 86% of decision makers said they expect Generative AI to create opportunities for their businesses. Organisations are looking for ways to help their employees continuously learn about AI technology and equip themselves with the necessary skills to thrive in the future landscape.

While AI has emerged as a game-changer, it also poses potential risks to organisations. In this paper, we delve into the application of Generative AI in commercial payments, including its role in reshaping client servicing, treasury operations, and cash flow management. We will also discuss the risks and challenges of adopting Generative AI and how organisations can prepare for these changes.

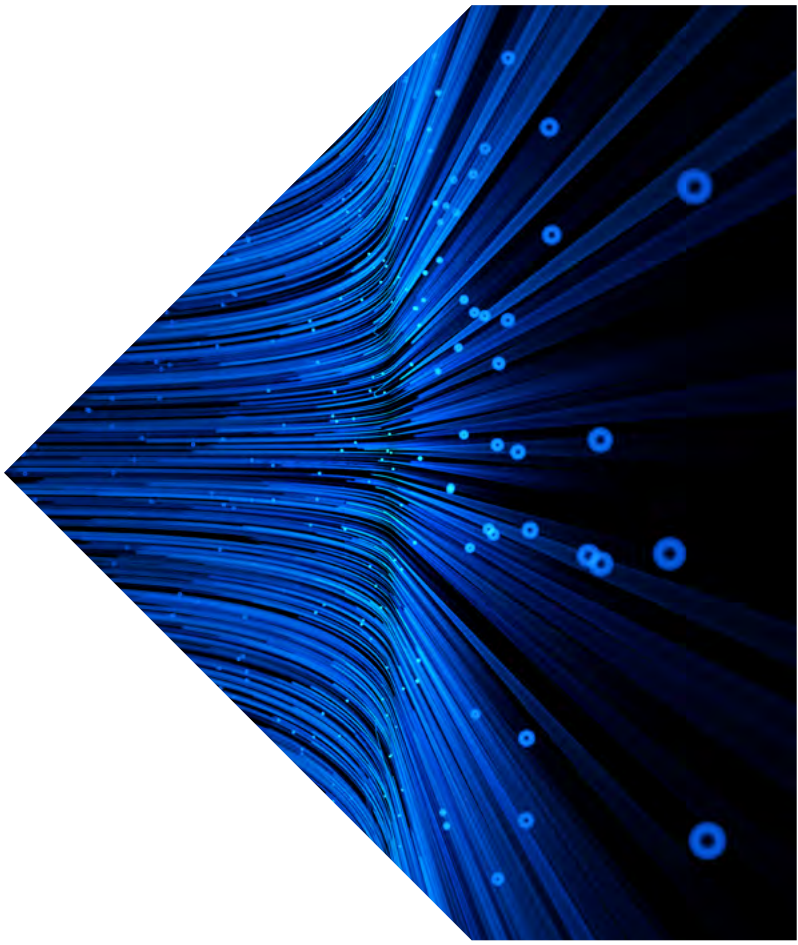
This report is part of HSBC Global Payments Solutions ("GPS") AI series, in which we aim to foster a dialogue around the practical applications of Generative AI in commercial payments. Special thanks to Accenture's collaboration on supporting the research and developing this AI series. Through surveys, expert interviews and real-world case studies, we will not only explore the technology itself but also provide concrete examples of its benefits and risks. Our goal is to exchange insights and best practices as we navigate the AI journey together, driving innovation and operational efficiency in ways that create value for your business and clients alike.



86% of decision-makers said they expect Generative AI to create opportunities for their businesses

1 HSBC Digital Horizon, How emerging tech will shape tomorrow's business, Jan 2024

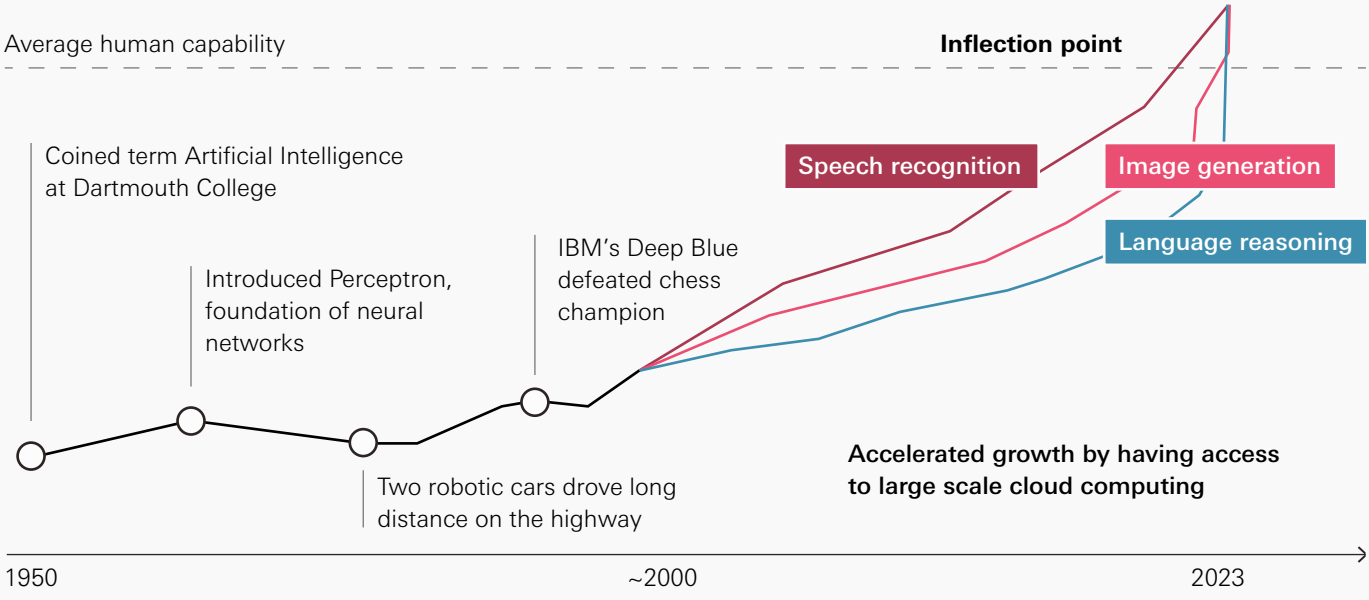
The evolving capability of AI



After decades of research that began in the 1950s, AI technology has continued to evolve and mature, gradually integrating itself into mainstream business operations and serving as a catalyst for innovation across industries (figure 1).

Traditionally, AI systems have been designed to recognise patterns, automate tasks, and make predictions based on historical data. These traditional AI systems, which include machine learning (ML) and deep learning algorithms, excel at analysing data to perform specific tasks like fraud detection, recommendation engines, or automating routine processes. The outputs of traditional AI systems are typically fixed or based on predefined rules and training data, meaning they operate within a controlled and structured environment.

Figure 1: The term "AI" was first coined in the 1950s. Since then, the growth of the technology has accelerated through access to large scale cloud computing



Source: Accenture

Rather than just analysing or recognising data, Generative AI has the ability to create new and original content. Using advanced models like large language models (LLMs) and neural networks, Generative AI can generate human-like text, create art, write code, produce music, and even design realistic images or videos (figure 2). It can do all this with minimal input, often learning and improving with every interaction.

Figure 2: Generative AI capabilities

Type of Generative AI	What does it do?	Example
Code	Code generation, modernisation, verification, etc.	Duolingo used Github's Copilot to improve developer productivity
Images	Generate image from text including colour, lighting, style, and more	Marvel series Secret Invasion used AI to design art for the opening credits
Speech / audio	Generative voices and sounds using voice inputs and natural language prompts	The 2023 Beatles song 'Now and Then' was made possible using AI software
Text	Search engine output, draft tests with a specific style and length, text manipulation, and more	Politicians using ChatGPT to help them prepare parliamentary speeches
Videos	Teaching AI to understand and manipulate the physical world and create text-to-video models	Disney's FaceDirector helps directors adjust actors' performances in post-production
Robotics	General-purpose humanoid robotics, enabled by intelligent embodied agents to interact with unstructured environments	Figure 01 robot interacting with a human and following verbal instructions

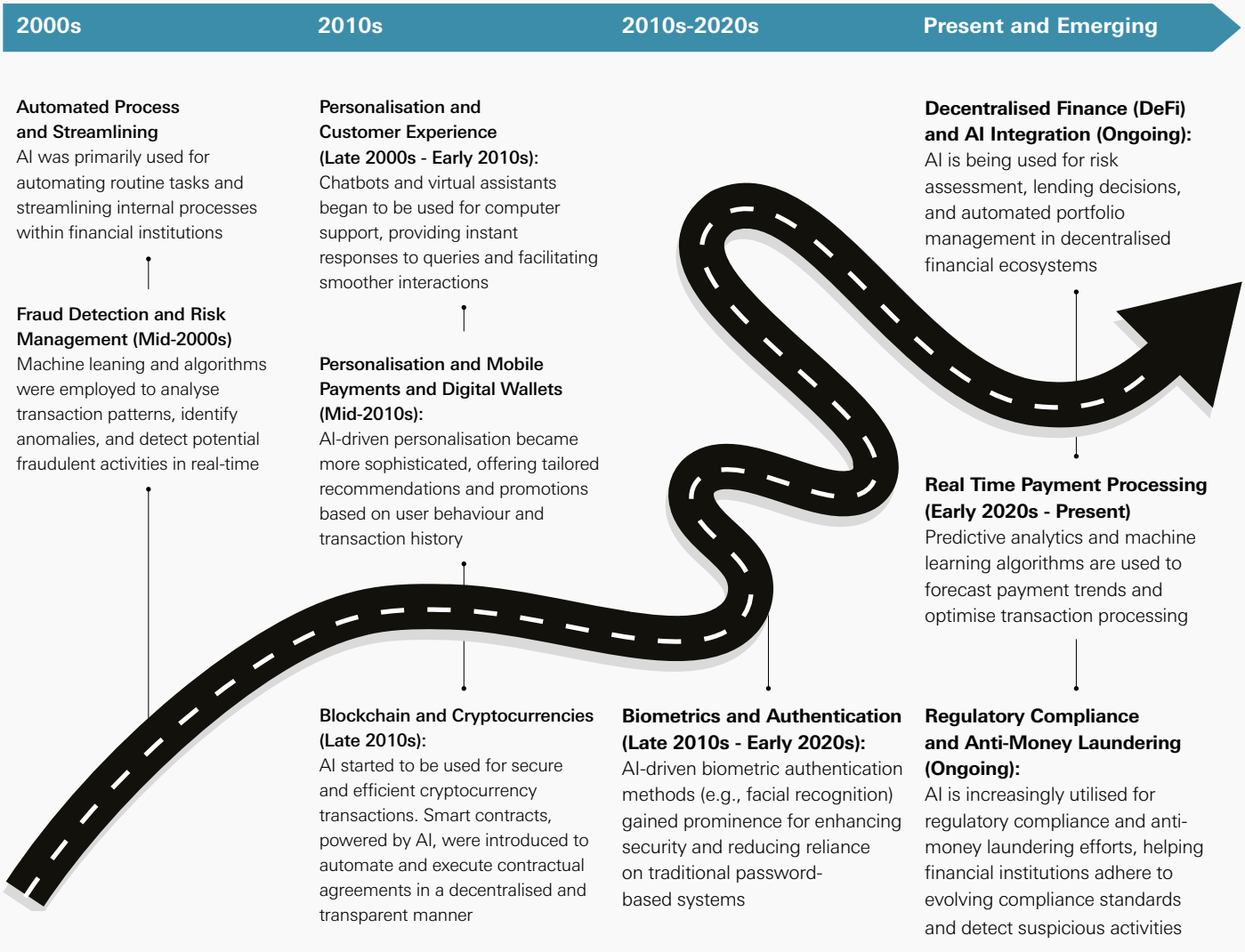
Source: HSBC Global Research: Artificial Intelligence: The good, the bad, and the ugly

To think about the impact that AI will have on workers, a few things need to be considered – both how exposed the nature of work is to the scope of AI skills, but also how complementary the work is to these same skills. So, some jobs may be impacted by AI, but the impact is likely to be more positive, while others could see a much more negative impact. On top of this, we need to see reorganisation of businesses to make the most of these potential productivity gains. (HSBC Global Research: Artificial Intelligence: The good, the bad, and the ugly)

Generative AI in the Payments Industry

The use of AI in the banking and payments industry is not a new phenomenon. In fact, HSBC's earliest machine learning models were developed a decade ago. In recent years, advancements in speech recognition, image generation and machine learning have allowed AI to support innovation across a range of payments use cases (figure 3). The introduction of Generative AI represents an inflection point in this journey, at which time the technology begins to augment human capability.

Figure 3: AI has advanced over the years and is supporting the payments industry with increasingly complex use cases



Source: Accenture

The commercial payments industry is ripe for disruption

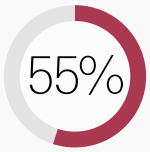
Growing disruption from digital challengers, increasing client impatience with traditional payment pain points and dependency on legacy technologies have posed challenges to incumbent payments providers as they strive to keep pace with an evolving market.

Increased competition
The rise of digital-native competitors, including FinTechs and Big Techs, is disrupting the market by directly competing with traditional banks for clientele, while also creating opportunities for partnerships between banks and these innovative firms.

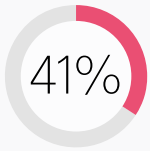
Customer expectations
Cash Management providers must look beyond offering competitive pricing as reliable and responsive client service are more likely to gain a competitive edge. A recent Coalition Greenwich Voice of Client Study[2] showed ~70% of corporate participants across regions chose "Customer Service" as one of the key selection criteria when choosing a new cash management provider.

Regulation
The payments regulatory environment is dynamic and constantly changing – requiring providers to be agile and comply with new rules and regulations as they get implemented.

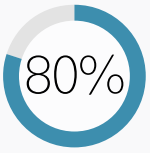
Initiatives like ISO 20022 present an opportunity to create an open, global, and consistent standard for financial information. To ensure readiness for the adoption of ISO 20022, banks and payments providers are identifying solutions for dealing with large amounts of unstructured data.



55% of payments incumbents reported that competitive solutions from FinTechs and Big Techs are eroding their share.
Source: Accenture Reinventing Commercial Payments Study



41% of corporate clients voted strong customer service as the top driver for choosing their payments providers
Source: Accenture Reinventing Commercial Payments Study



80% of banking data is unstructured
Source: Unlocking The Value Of Unstructured Data In Banking | FIS (fisglobal.com)

2 Coalition Greenwich Voice of Client – 2023 US, Europe, MENA & Asia Large Corporate Cash Management Studies

High operational costs
Many of the manual activities being carried out today can be optimised with the implementation of Generative AI, which can provide significant savings to banks and payments providers.

Whilst Generative AI promises significant productivity gains, for many organisations there is a gap between need and readiness, which we will explore later in this report.

Legacy technology
The legacy technology stack that most banks and payments providers are using has constrained their ability to innovate quickly and offer new services to their clients.

The siloed nature of systems and data serves as a barrier for banks and payments providers trying to compete with new innovative services entering the market.

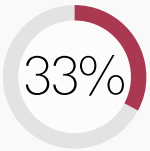
While AI holds immense potential, it is not a solution for all challenges. At HSBC, our approach to adopting AI is to be laser-focused on solving client pain points and improving the client experience in a responsible manner.

Top client pain points for commercial payments
Today, pain-points in the payments system cost the industry around $2 billion each year and affect more than 700 million transactions[3]. We summarise the top pain points below:

- **Need of simple, accurate and frictionless payments:** In a recent Coalition Greenwich Voice of Client Study[4], corporates quoted that "Ease of doing business" and "Customer Services" are top selection criteria when choosing to work with a Cash Management bank.

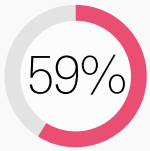
  Accenture's research[5] has also highlighted that 23% of clients express concerns over payment errors, which result in lower authorisation rates and increased costs for their businesses.

- **Real time data for visibility and strategic decision making:** Payments data holds a wealth of information that, when properly analysed in real-time, can be used to better target customers, provide insights, and assist in strategic decision making. In an HSBC survey[6], 82% of the respondents agree that supporting data collection and analysis is a top priority use case of AI, while 52% expect the technology to improve related cash flow forecasting.



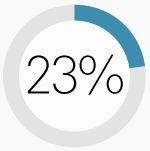
The use of large language models (LLMs) has the potential to automate 33% of time spent on tasks at banks.

Source: Accenture Work, Workforce, Workers Age of Generative AI Report



59% FIs struggle with slow provisioning of new payments solutions due to a legacy tech stack

Source: Accenture Reinventing Commercial Payments Study



23% of clients express concerns over payment errors, which result in lower authorization rates and increased costs for their businesses

Source: Accenture Reinventing Commercial Payments Study

- **Robust fraud prevention and detection:** Nasdaq finds that fraud scams and bank fraud schemes resulted in $485.6 billion in losses globally in 2023[7]. 43% of clients[8] cite weak fraud prevention as a major issue. Fraudsters are becoming increasingly sophisticated in their methods given the technological advancement. Treasurers are grappling with escalating fraud and cyber risks in this digital age. As ability to move funds instantly or nearly-instantly increases, so do clients' expectations on robust fraud detection systems.

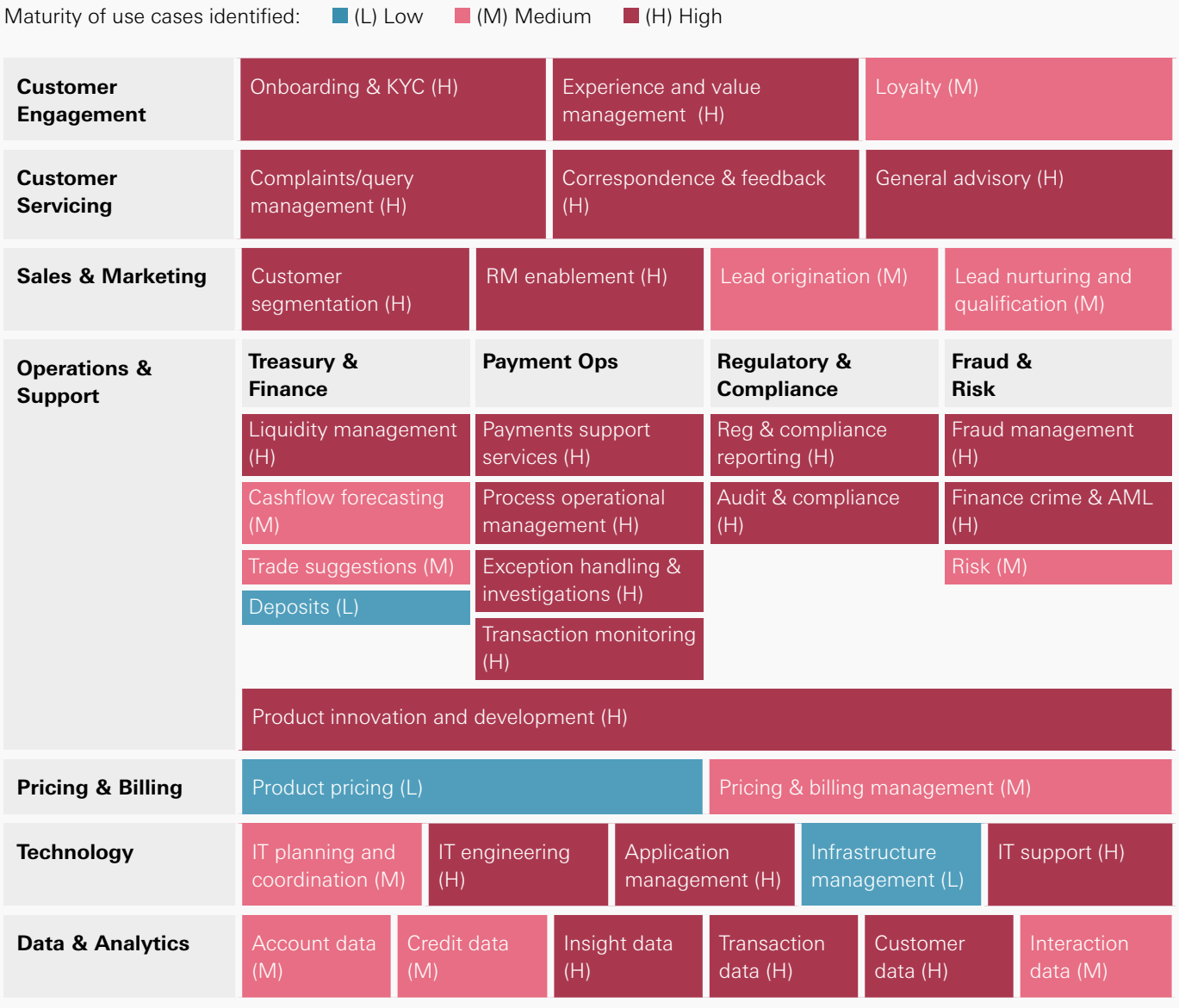
When we consider these issues, it becomes clear that while AI can provide solutions to some of these problems, it is not a universal remedy. Therefore, it is crucial to apply AI judiciously, addressing specific challenges rather than treating it as a hammer for all nails.

3 Swift – Payment pre-validation
4 Coalition Greenwich Voice of Client – 2023 US, Europe, MENA & Asia Large Corporate Cash Management Studies
5 Accenture Reinventing Commercial Payments Study
6 HSBC Corporate Treasury Risk Management Survey 2024
7 Nasdaq Global Financial Crime Report, 2024
8 Accenture Reinventing Commercial Payments Study

Potential of AI applications in payments and treasury management

AI presents the opportunities to rewire existing, complex payment processes to be simpler and more efficient. Upon studying the capabilities of Generative AI, we have mapped out the potential applications in payments and Treasury Management (figure 4), with use cases ranging from early-stage innovations like automated document processing to more mature applications such as enhanced fraud detection and tailored client interactions.

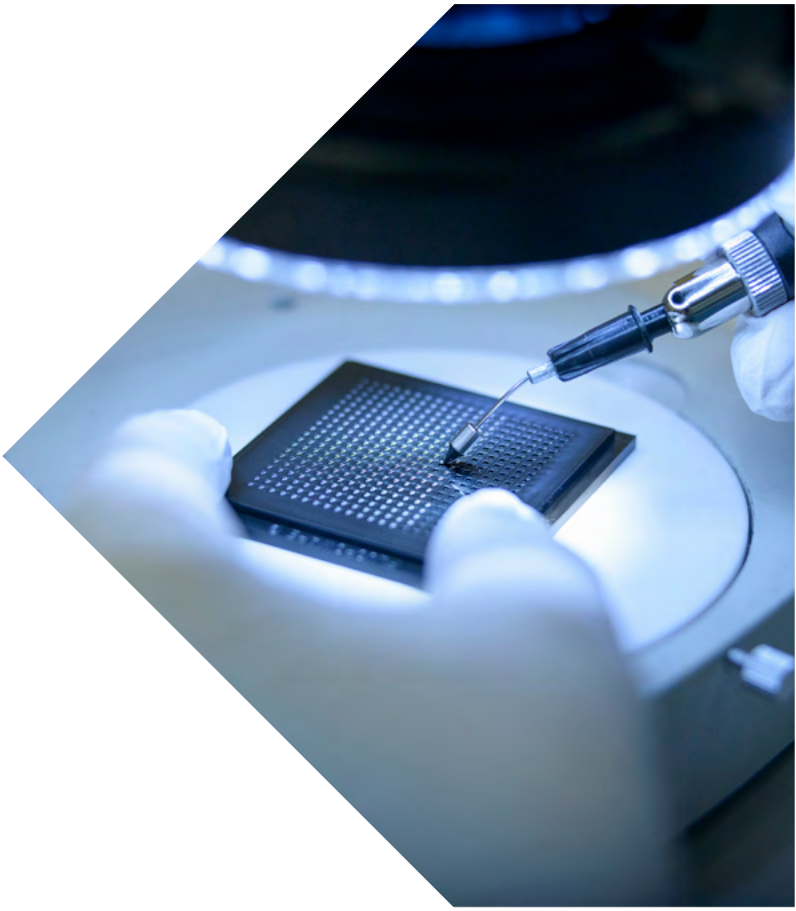
Figure 4: Value Opportunity for Generative AI related to Payments and Treasury Management



Source: HSBC and Accenture

High maturity payments use cases

> Remarks: Example use cases quoted below are based on the study of industry problem statements and the capability of the technology. They do not represent HSBC use cases.



1. Client Servicing

Generative AI has the potential to improve client servicing by providing proactive support, targeted recommendations, and efficient query resolution. AI-powered virtual assistants can assist our staff in handling a wide range of customer interactions, from answering basic questions to managing more complex inquiries. This not only improves customer satisfaction but also reduces the burden on human support teams, allowing them to focus on more strategic tasks.

Example use cases

- Virtual assistant for staff handling client queries
- Summarisation of correspondence for efficient case handling
- Process and knowledge management
- Analysis based on recent transaction history

2. Sales and Marketing

In sales and marketing, Generative AI can analyse client data, including company information and requirements to provide highly tailored solutions and product offerings. For example, Treasures can potentially benefit from more in-depth insights drawn from past data enabled by Generative AI during the request for proposal ("RFP") process. This leads to more meaningful client engagement and more efficient use of resources. AI can analyse vast amount of clients' data across the bank and identify patterns that would benefit clients across industries and geographical locations.

Example use cases

- Request for proposal ("RFP")
- Sales enablement
- Product and market knowledge management

3. Treasury and Finance

Generative AI can optimise processes such as accounts receivable (AR) and accounts payable (AP), cashflow management, and financial forecasting. Predictive analytics powered by AI can provide more accurate forecasts, helping organisations manage liquidity more effectively and make better-informed decisions. Traditional machine learning should not be overlooked here, with its ability to learn from historical transactions appropriately and accurately without generating new information.

Example use cases

- Automated payments processing
- Automated reconciliation
- Invoice and payments matching
- Predictive analytics for cashflow forecasting

4. Fraud Prevention

Financial institutions can use Generative AI to enhance their ability to detect and prevent fraudulent activities, particularly in cross-border payments where the risk is higher. Additionally, AI can generate synthetic data to simulate fraud scenarios, helping institutions improve their defences against new and evolving threats. At HSBC, fraud prevention is one of the key focus areas for AI exploration. We have announced a partnership with SWIFT[9], together with a number of financial institutions, on a pilot to use AI to tackle cross-border payments fraud.

9 Swift and global banks launch AI pilots to tackle cross-border payments fraud

Example use cases

- Detection of irregular payment patterns
- Prevention of identify fraud
- Improve efficiency of AML and sanctions screening and monitoring

5. Operations

Generative AI, paired with machine learning, presents a great potential to automate a wide range of tasks, from data entry to reporting, significantly reducing operational costs and improving productivity. AI can also monitor Service Level Agreements (SLAs) and support internal and external communication, ensuring that operations run smoothly and efficiently.

Example use cases

- Payment investigation
- Service Level Agreement monitoring
- Payment operations monitoring

6. Regulatory Compliance

Generative AI, supervised by a human expert, can also play a role in regulatory compliance by improving the interpretation and monitoring of complex regulatory requirements. AI can help automate the process of structuring data for regulatory reporting, track and interpret scheme rules, and provide recommendations for compliance implementation. This reduces the risk of non-compliance and helps institutions stay ahead of regulatory changes.

Example use cases

- ISO messaging (structuring data, e.g., addresses)
- Scheme rules tracking and interpretation
- Implementation recommendations
- Contract review for legal and compliance
- Compliance assessment

7. Product Development and Technology

Generative AI can potentially accelerate the pace of innovation by automating code generation and modernising legacy systems. It also presents an opportunity to maintain best practices in product documentation and standardisation. This not only enhances the institution's agility but also improves its ability to meet the evolving needs of its customers.

Example use cases

- Generation of personas, user stories and tasks
- Code generation and analysis
- AI-assisted prototyping

Adopting AI

Organisation leaders are becoming more receptive about adoption of AI technology. Larger companies with more than $10 billion in revenues have already implemented some form of AI more widely than their smaller counterparts. Over the last year there has been a significant increase to 60% of CXO's expecting their Generative AI solutions to be scaled across their organisation (up from 36% in 2024)[10].

Over the next three years, finance leaders expect AI tools to become increasingly integral to their risk management decision-making process, with 61% of the respondents saying AI is expected to be very or extremely useful compared to 38% today[11].

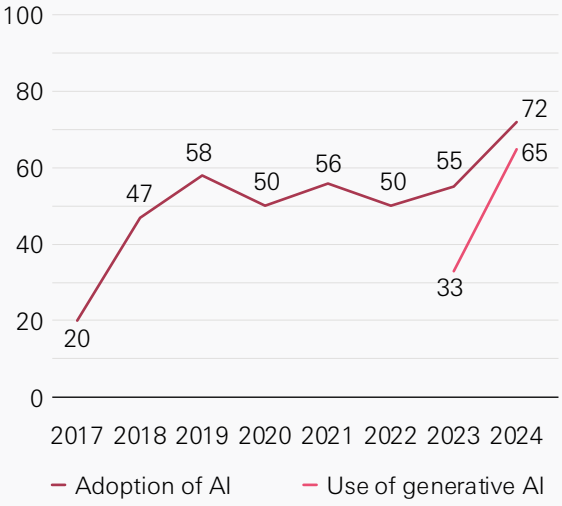
Many organisations are unable to implement Generative AI to the degree desired with their current data architectures and infrastructure. A strong digital core is an essential enabler for Generative AI to deliver its full potential. In Accenture's analyses, companies with industry-leading digital cores are reinventing twice as many functions with Generative AI and are expected to create twice as much value[12].

When adopting AI technology, organisations have a number of options:

- Buy off-the-shelf models
- Buy off-the-shelf models and customise them
- Develop their own foundation models

Though finely balanced, more organisations are utilising off-the-shelf models with little or no customisation.

Figure 5: Organizations that have adopted AI in at least 1 business function*
% of respondents



Source: McKinsey Global Survey on AI, 1,363 participants at all levels of the organization, Feb 22–Mar 5, 2024

* In 2017, the definition for AI adoption was using AI in a core part of the organization's business or at scale. In 2018 and 2019, the definition was embedding at least 1 AI capability in business processes or products. Since 2020, the definition has been that the organization has adopted AI in at least 1 function

10 Accenture Pulse of Change: Business and Technology Trends
11 HSBC Corporate Risk Management Survey 2024
12 Accenture Reinventing with a Digital Core

A successful Generative AI strategy will be based on:

- **A modern, digital core:** Building this requires integrating advanced digital platforms, a seamless data and AI backbone and a secure foundation using radical new engineering principles. It will accelerate the launch of innovative offerings, improve existing products, increase client value and enable more effective collaboration with ecosystem partners.

- **Strong ecosystem partnerships**: Ecosystem partnerships are crucial for a successful Generative AI strategy as they provide access to specialised expertise, richer datasets, and cutting-edge technologies, enabling faster innovation and scalability.

- **A focus on client-centricity:** Client-centric organisations can leverage AI to deliver more intuitive, seamless interactions and tailored products and services that resonate with clients on a deeper level, fostering loyalty and increasing satisfaction.

Fundamentally, without the first two, Generative AI will not have the reliable data required to make reliable and meaningful outputs. It's a common concern from corporate leadership, often inheriting legacy technology platforms, but it remains a priority in order to fully utilise the benefits of Generative AI.

Ethical considerations

The proliferation of misinformation and disinformation through AI-generated visual and written content presents an increased risk with this technology. HSBC has established an AI Centre of Excellence and, in 2020, we were one of the first banks to publish our AI and data ethics principles. We continue to emphasise the importance of thinking ethically about our AI use.

We looked at some of these key concerns in our report 'AI: The good, the bad and the ugly' and here we consider this from a payments lens.

- **Bias and harm:** The inherent bias in training data for banks can propagate model bias, leading to toxic output and discrimination for customers of certain races, socioeconomic classes or age groups. In payments use cases, this could materialise as discriminatory outcomes in fraud detection or in dynamic pricing strategies.

Figure 6: Strategy for developing generative AI (gen AI) capabilities
% of reported instances of gen AI use†

Source: McKinsey Global Survey on AI, 1,363 participants at all levels of the organization, Feb 22–Mar 5, 2024

† Question was asked only of respondents who said their organization regularly use generative AI in at least 1 business function. Figures were calculated after removing respondents who said "I don't know".

- **Liability and compliance:** The litigation and regulatory environment is evolving rapidly without any clear global standards yet – any implementation of Generative AI needs to be future proofed to avoid potential legal and financial risks. For example, the EU's Artificial Intelligence Act[13], currently under negotiation, will introduce a risk-based classification for AI-systems in finance and payments and include measures to mitigate bias, particularly in high-risk areas like credit decisions, payments, and lending.

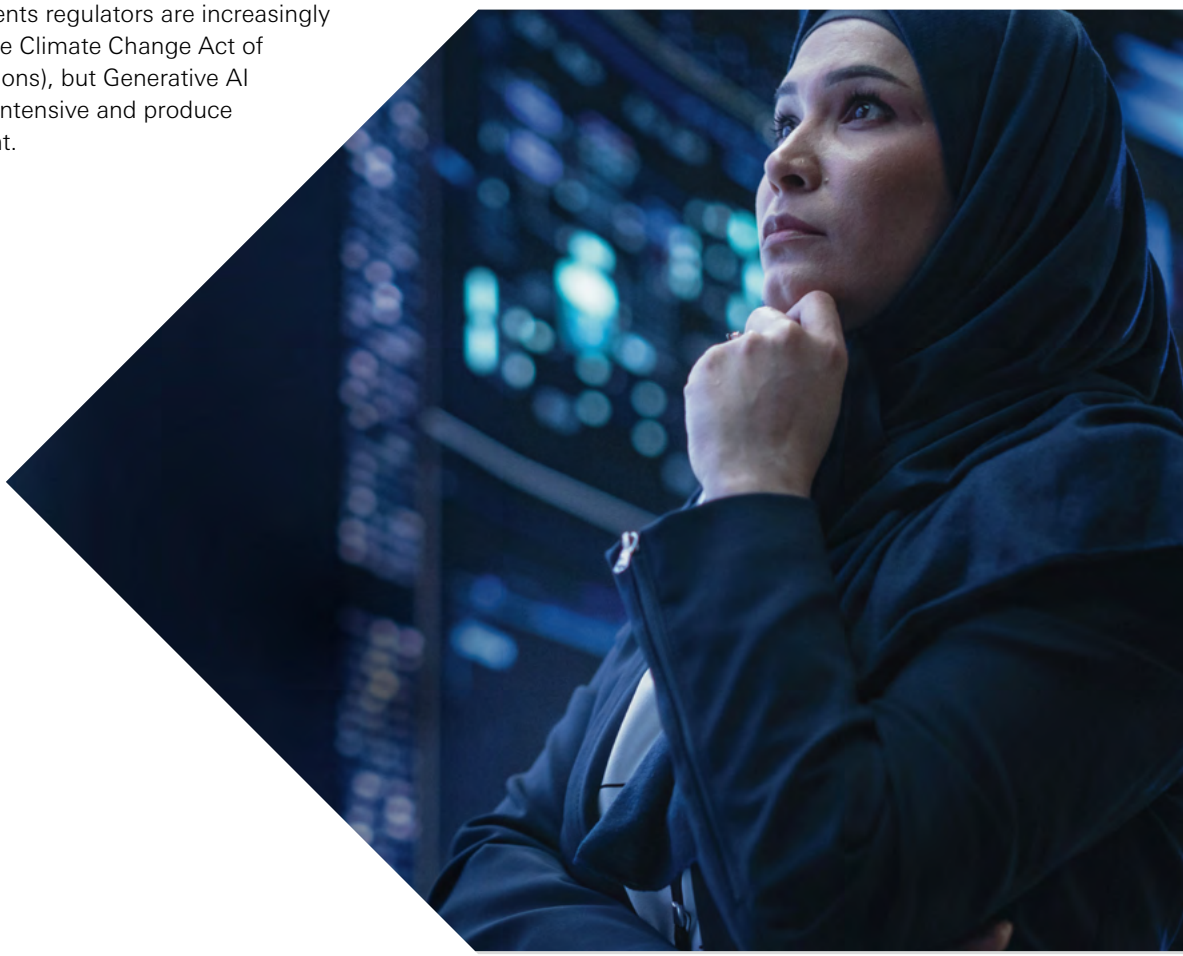
- **Malicious content creation:** The risk is that users intentionally exploit language models to cause harm such as encouraging unethical actions, disseminating false or deceptive information like spam content, and assisting in illegal activities. In payments, there is increasing regulatory focus on consumer protection as the number of transactions with harmful content increases. For example, Westpac discovered 35,000 transactions containing some type of bad language in a 2-month period[14].

- **Sustainability:** Payments regulators are increasingly focused on meeting the Climate Change Act of 2008[15] (net zero emissions), but Generative AI models are computer intensive and produce a large carbon footprint.

- **Workforce transition:** The introduction of Generative AI might lead to workforce changes, requiring organisations to have strategies in place for reskilling and training existing workers for AI-specific roles.

- **Explainability and transparency:** Large language models used in Generative AI could act as a black box, and documented cases of hallucinations could reduce trust in any outputs produced. Therefore, transparent and explainable AI is extremely important in a highly regulated payments industry.

- **Security and information hazards:** Organisations need to be assured that confidential and personal information is protected and systems are tightly secured.



13 EU's Artificial Intelligence Act
14 The Spinoff: How online bank transfers are being hijacked for harassment and abuse
15 Climate Change Act 2008 (legislation.gov.uk)

Where to begin?

Despite the advanced capabilities of Generative AI, it is not truly creative and cannot generate novel insights without human input. By combining AI with human judgement, organisations can unlock new possibilities that would otherwise be out of reach for commercial payments.

After all, who knows your business better than your people? Generative AI is a tool to be shaped, prompted and augmented by those who care most, and know most, about your clients. Your trusted technology teams can explain its value to senior management and demonstrate how it can transform client experiences and the bottom line.

The full potential of Generative AI can only be unlocked by knowledgeable, passionate humans in the business. We believe the journey to realise the potential of Generative AI starts with these steps:

1. **Engage** your bank, technology and consultancy partners for best-in-class insights and best practices

2. **Reimagine** your business processes with Generative AI, embed in existing processes and driving behaviour change

3. **Deploy** a Generative AI team, taking your best creative people from all parts of the business

Generative AI presents a transformative opportunity for the commercial payments industry. It can help organisations address long-standing inefficiencies, prevent fraud and give customers personalised experiences. However, to fully unlock its value, organisations must overcome readiness challenges, navigate evolving regulations and combine AI's capabilities with human creativity to reimagine business processes and ensure responsible implementation.

Keep an eye out for the HSBC Global Payments Solutions (GPS) AI series. In the upcoming reports, we will further discuss specific AI applications in the commercial payments industry including:

- Excellence in client servicing using AI
- Empowering treasury with AI cash flow management

"Integrating payments with Generative AI will revolutionise how businesses operate by driving efficiency in working capital management, creating intuitive customer experiences and reducing costs through automation. By harnessing the power of AI, we're not just streamlining transactions but also transforming them into intelligent interactions. This is setting a new standard for innovation in financial services and payments. Getting the Digital Core, or your foundational technology, and your best people and partners in place will be key to readying your business for this exponential pace of change."

Amit Mallick
Digital Payments Lead, Europe, Accenture

Relevant HSBC readings

August 2024:
HSBC Corporate Risk Management Survey

May 2024:
HSBC Global Research – AI: The good, the bad and the ugly

February 2024:
HSBC Global Research – Can AI do my job?

February 2024:
HSBC Global Research – AI Regulations

January 2024:
HSBC Digital Horizon, How emerging tech will shape tomorrow's business

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September 2023:
HSBC Global Research – Data Matters: This month in AI

February 2023:
HSBC Global Research – Generative AI: The rise of the machines

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January 2023:
HSBC Global Research – Will AI take your job?

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