HEXAWARE

mobiquity

A global benchmark for sustainable banking 2023

EMERGING TECHNOLOGIES IN BANKING

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OVERVIEW

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CHAPTER 1

Foreword

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The landscape of banking has transformed rapidly in recent years with traditional financial institutions facing unprecedented challenges from agile fintech startups and digital-native disruptors. In response, banks worldwide have embarked on a transformative journey, leveraging emerging technologies to restructure their operations, enhance customer experiences, and elevate their competitive edge.

This report delves into the emerging technologies and digital tooling that are reshaping the banking industry across the United States, the United Kingdom, the Netherlands, and Australia. It examines the key trends, opportunities, and challenges presented by the adoption of these technologies.

This report will delve further into the identified top 5 emerging technologies and digital tooling in banking 2023:

Cybersecurity technologies

Addressing the critical importance of safeguarding sensitive financial data and mitigating cyber threats in an increasingly connected world.

Machine Learning (ML) and Artificial Intelligence (AI)

Leveraging advanced algorithms to analyse vast datasets and make informed decisions, enhancing efficiency, and driving innovation.

Generative AI

Utilising an AI-powered language model to interact with users through natural language, offering conversational assistance and information across multiple domains.

Mixed Reality - Augmented Reality (AR) and Virtual Reality (VR)

Immersive technologies that blend the physical and digital worlds, enabling interactive and engaging experiences for users.

Digital Wealth Management technologies

Innovative financial tools and platforms that utilise digital solutions, automation, and data analytics to optimise investment strategies, provide personalised financial advice, and improve overall wealth management for clients.

In an era marked by relentless technological advancements, the banking industry must embrace change and the opportunities presented by emerging technologies to ensure they don't get left behind. By exploring how banks utilise these technologies for success, we aim to empower readers to navigate the rapidly evolving landscape of banking with confidence.

CHAPTER 2

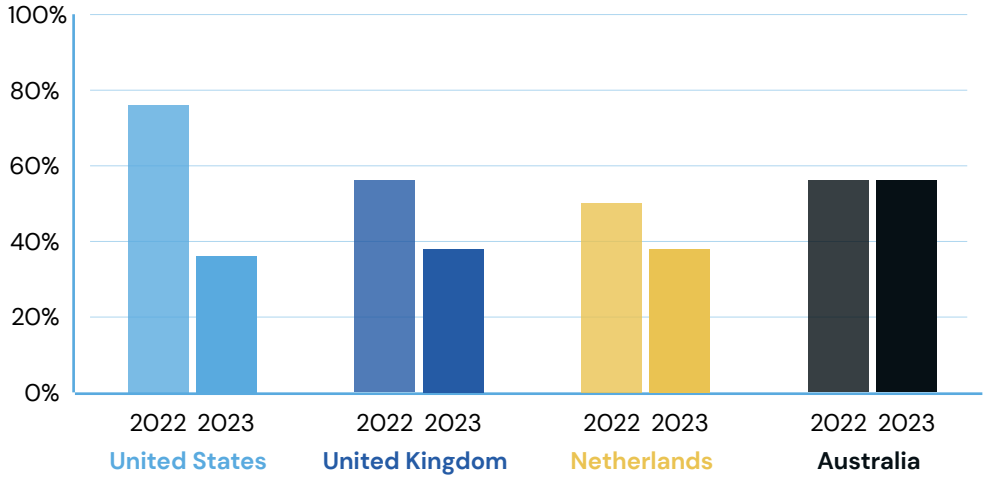
Main findings

This is the 3rd year that Mobiquity surveyed 600 C-suite banking executives in the United States, United Kingdom, the Netherlands, and Australia.

To ask about their adoption of Metaverse technologies and use of emerging technologies.

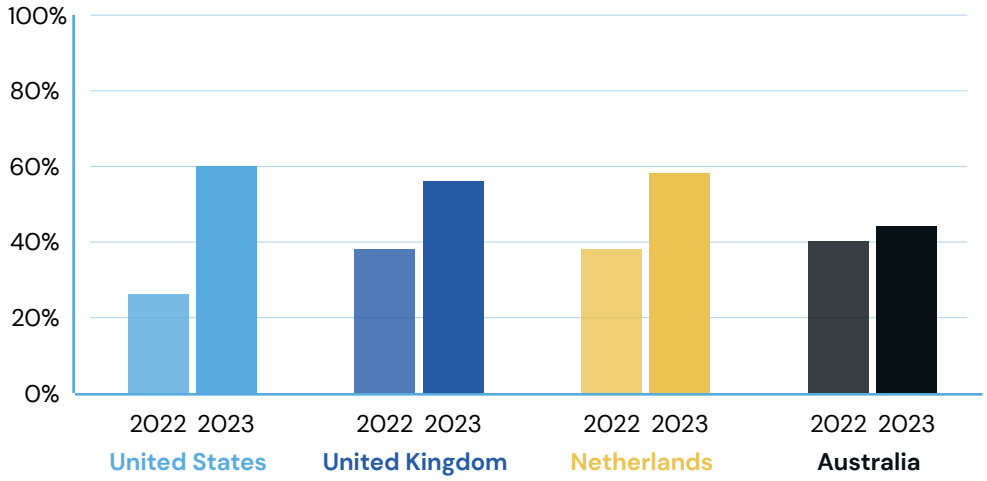
Banks engaging with Metaverse technologies

Fewer C-Suites surveyed are engaging with Metaverse technologies in 2023 compared to 2022. The largest decline is seen in US with three quarters (75%) saying this in 2022 and under 2 in 5 (36%) saying the same in 2023. Australia (55%) on the other hand, show the same number of banks engaging in Metaverse technologies in 2023 and 2022.



Banks planning for Metaverse technologies

Over half (54%) of C-suites surveyed said they are planning to enter the Metaverse and are actively researching ways to engage but have not implemented any Metaverse technology, and 1 in 20 (4%) said they do not have plans to engage with Metaverse technologies for the foreseeable future.



Preferred technologies to be used to support ESG and transparency in the banking sector

2 in 5 C-suites (40%) surveyed said technology can best be used to support ESG reporting and transparency in the banking sector by implementing digital tools and platforms to collect, analyse, and report ESG data and metrics in a standardised and consistent manner. While just under 2 in 5 (36%) C-suites surveyed noted developing data visualisation tools to improve stakeholder engagement and understanding of ESG risks and opportunities as a preferred use of technology to support transparency.

United States

39%
Developing blockchain-based solutions

39%
Developing data visualisation tools

36%
Implementing digital tools and platforms

United Kingdom

41%
Developing data visualisation tools

37%
Using ML and AI

37%
Developing blockchain-based solutions

Netherlands

43%
Implementing digital tools and platforms

41%
Implementing cybersecurity measures

35%
Developing data visualisation tools

Australia

45%
Implementing digital tools and platforms

45%
Developing blockchain-based solutions

38%
Using ML and AI

Top 10 emerging technologies in banking in 2023

GLOBAL

The data shows cybersecurity technologies as the global top emerging technology in banking, with C-suites surveyed in the US (23%), UK (23%) and the Netherlands (22%) noting it as a key focus for their bank. ChatGPT, Machine Learning (ML) and Artificial Intelligence (AI), digital wealth management technologies, big data technologies, and Metaverse technologies are all tied as the 3rd top emerging technology globally (19%). Under a fifth (18%) of C-Suites surveyed said their bank is engaging with blockchain and Web3 technology, whilst just over 1 in 6 (17%) state their bank is engaging with P2P payments. 1 in 6 (16%) banking executives said their bank is engaging with embedded finance solutions, and the same percentage (16%) said their bank is engaging with open banking API's.

21%
Cybersecurity technologies

20%
Machine Learning (ML) and Artificial Intelligence (AI)

19%
ChatGPT

19%
Extended Reality (XR): Augmented Reality (AR) and Virtual Reality (VR)

19%
Digital Wealth Management technologies

19%
Big Data technologies

19%
Metaverse technologies

18%
Intelligent Automation and Robotic Process Automation (RPA)

18%
Cloud Computing

18%
SaaS Core Banking

Top 10 emerging technologies in banking in 2023

UNITED STATES

Over a fifth (23%) of C-Suites surveyed in the US state cybersecurity technologies as their bank's top focus. Over 1 in 5 (22%) said their bank is currently engaging with embedded finance solutions. While under a fifth (18%) of banking executives state their bank is engaging with big data technologies, Augmented Reality (AR) and Virtual Reality (VR), and hyper personalised banking.

23%
Cybersecurity technologies

22%
Embedded Finance solutions

21%
Blockchain and Web3 technology

19%
Machine Learning (ML) and Artificial Intelligence (AI)

19%
ChatGPT

19%
Cloud Computing

19%
Metaverse technologies

18%
Big Data technologies

18%
Extended Reality (XR): Augmented Reality (AR) and Virtual Reality (VR)

18%
Hyper Personalised Banking

Top 10 emerging technologies in banking in 2023

UNITED KINGDOM

Similar to the US, over a fifth of C-Suites surveyed in the UK (23%) stated cybersecurity technologies as a key focus for their bank. Under a fifth (18%) said their bank is engaging in embedded finance solutions. While just over 1 in 6 (17%) said their bank is engaging blockchain and web3 technology.

23%
Cybersecurity technologies

22%
Cloud Computing

22%
Extended Reality (XR): Augmented Reality (AR) and Virtual Reality (VR)

21%
Digital Wealth Management technologies

21%
Open Banking API's

20%
Big Data technologies

20%
SaaS Core Banking

19%
Intelligent Automation and Robotic Process Automation (RPA)

19%
Machine Learning (ML) and Artificial Intelligence (AI)

19%
P2P Payments

Top 10 emerging technologies in banking in 2023

NETHERLANDS

C-suites surveyed in The Netherlands (22%) state ChatGPT and cybersecurity technologies as the top focus for their banks. Only 1 in 8 surveyed (12%) said their bank is engaging with embedded finance solutions. While under 1 in 6 (15%) banking executives said their bank is engaging Augmented Reality (AR) and Virtual Reality (VR), hyper personalised banking, and open banking API's.

22%
ChatGPT

22%
Cybersecurity technologies

20%
Blockchain and Web3 technology

19%
Big Data technologies

19%
Metaverse technologies

17%
Digital Wealth Management technologies

17%
Machine Learning (ML) and Artificial Intelligence (AI)

17%
P2P Payments

17%
SaaS Core Banking

16%
Intelligent Automation and Robotic Process Automation (RPA)

Top 10 emerging technologies in banking in 2023

AUSTRALIA

C-suites surveyed in Australia (24%) state Machine Learning (ML) and Artificial Intelligence (AI) as their bank's top focus. Compared to other countries just over 1 in 6 (17%) said cybersecurity technologies. However, banking executives surveyed from Australia(23%) are more likely to say their bank engages with ChatGPT, compared banking executives from the UK (13%). Similar to The Netherlands, only 1 in 8 surveyed from Australia (12%) said their bank is engaging with embedded finance solutions.

24%
Machine Learning (ML) and Artificial Intelligence (AI)

24%
Metaverse technologies

23%
ChatGPT

22%
Intelligent Automation and Robotic Process Automation (RPA)

21%
Extended Reality (XR): Augmented Reality (AR) and Virtual Reality (VR)

19%
Digital Wealth Management technologies

18%
Big Data technologies

17%
Cloud Computing

17%
Cybersecurity technologies

16%
Open Banking API's

CHAPTER 3

Recommendations

Harnessing the transformative power of emerging technologies

Emerging technologies have been reshaping the banking industry, enabling banks to enhance their services, improve efficiency, and meet the evolving needs of customers. In this rapidly evolving landscape, harnessing the transformative power of these technologies has become a critical imperative. As financial institutions navigate the digital era, they must embrace innovative solutions to stay competitive and meet the evolving demands of customers.

We will further explore in more detail the potential of the top 5 emerging technologies across the United States, the United Kingdom, the Netherlands, and Australia. By understanding and leveraging these, banks can deliver more personalised customer experiences, optimise operational efficiency, and pave the way for a more sustainable and digitally driven future in banking.

Cybersecurity technologies

Cybersecurity technologies have become paramount in the banking industry, given the rising threat posed by cybercriminals, and therefore, comes as no surprise that banks have noted these technologies as their top focus. Everday banks handle vast amounts of sensitive data, making them prime targets for cyberattacks. To safeguard customer information, financial assets, and maintain the trust of their clients, banks are increasingly investing in robust Cybersecurity technologies. Banks should start by conducting a comprehensive Cybersecurity assessment to identify vulnerabilities and areas of improvement. Once potential risks are identified, investing in advanced Cybersecurity technologies can fortify their digital infrastructure. These advanced solutions encompass a range of tools, including firewalls, intrusion detection systems, encryption protocols, multi-factor authentication, and AI-driven threat intelligence. By deploying such cutting-edge Cybersecurity technologies, banks can effectively detect, prevent, and respond to cyber threats, ensuring the resilience and security of their digital infrastructure.

HSBC are the first bank to join BT and Toshiba's quantum-secure communications network. The technology Quantum Key Distribution (QKD) and the network is the first of its kind and uses quantum physics to encrypt data in ways that are virtually impossible to crack. HSBC will trial the quantum secure transmission of test data over fibre-optic cables between its global HQ in Canary Wharf and a data centre in Berkshire, in an effort to futureproof the cybersecurity of its bank.

Machine Learning (ML) and Artificial Intelligence (AI)

Machine Learning (ML) and Artificial Intelligence (AI) have revolutionised the banking industry, transforming the way financial institutions operate and interact with customers. These technologies enable banks to gain valuable insights, automate processes, and enhance decision-making capabilities. Through ML algorithms, banks can efficiently analyse data, enabling personalised services, risk assessment, and fraud detection. AI-powered chatbots can enhance customer support, providing instant assistance and streamline interactions. Moreover, AI-driven insights empower banks to make data-driven decisions, optimise investment strategies, and automate processes, leading to increased efficiency and cost savings. As ML and AI continue to advance, their transformative impact on the banking industry holds the promise of delivering enhanced customer experiences, improved risk management, and greater operational agility.

Bank of America has introduced Erica, an AI-powered virtual assistant that provides personalised financial guidance and assistance to customers. Erica assists users with tasks such as account management, financial planning, and investment recommendations. The implementation of Erica has resulted in improved customer engagement, reduced call centre volume, and increased customer satisfaction.

Generative AI

The emergence of Generative AI (Gen AI), an advanced form of AI leveraging complex algorithms and deep learning, further enables banks to analyse vast amounts of customer data, improving personalisation and customer service. By understanding customer preferences and behaviour, Gen AI can facilitate tailored financial solutions and enhance the overall user experience. One example of such AI language model is ChatGPT. It utilises natural language processing and has the capability of engaging with customers in natural language conversations, offering instant support, answering queries, and assisting with transactions.

ChatGPT became the fastest-growing app in history, gaining over an estimated 100M users in under two months according to UBS research, surpassing other popular online services such as TikTok, Instagram and Netflix which took a considerably longer time to reach the 100M user mark. Although ChatGPT holds tremendous potential to reshape the banking landscape, by optimising operations, and providing more personalised and efficient services to customers, many major banks remain cautious of implementing tools such as ChatGPT amid concerns for security, regulatory compliance, along with lack of control over customer interactions.

Mixed Reality: Augmented Reality (AR) and Virtual Reality (VR)

Mixed Reality, encompassing both Augmented Reality (AR) and Virtual Reality (VR), holds promising applications in the banking industry. AR can enhance customer engagement by overlaying digital information onto the physical banking environment, providing clients with personalised financial insights, product recommendations, and interactive guidance. It also streamlines complex banking processes, enabling customers to access real-time information and conduct transactions seamlessly. VR offers banks the opportunity to create immersive and interactive experiences, such as virtual branch visits, financial education modules, and investment simulations. These technologies not only elevate customer experiences but also facilitate internal operations by enabling remote collaboration and training for employees. As XR continues to advance, banks are presented with unique ways to connect with customers and optimise their services, fostering innovation and efficiency.

BNP Paribas data visualisation tool W.I.R.E.D. (Wearable Immersive Real Estate Dataroom), a digital twin of the city of today and tomorrow, aims to take the customer experience to a new level. It enables users to virtually explore a city and how it may evolve in the future.

Digital Wealth Management technologies

Digital Wealth Management technologies are revolutionising the financial industry, offering innovative solutions for both clients and financial institutions. These technologies leverage advanced Data Analytics, AI, and ML to deliver personalised investment advice and portfolio management. For clients, digital wealth management platforms help to provide convenient access to their financial information, real-time performance tracking, and customised investment strategies based on individual goals and risk profiles. These technologies can also enable financial advisors to streamline client onboarding, automate routine tasks, and make data-driven investment decisions. The seamless integration of digital wealth management technologies helps to enhance the overall client experience, improving portfolio performance, and optimising operational efficiency, making it a game-changer in the realm of modern finance.

Wealthsimple helps customers to ensure that their financial plan is tax-efficient and aligned with their long-term goals. The app claim to make the tax filing process ‘hassle-free and worryfree’ with their tax calculation tool. A client or advisor can insert the required numbers into the calculator to calculate their taxes and receive visibility on tax bracket, marginal tax rate, average tax rate, and payroll tax deductions, along with an estimate of tax refunds, and taxes owed within one year.

Technology and sustainability

Technology and sustainability are becoming increasingly intertwined, as more importance is placed globally on being environmental conscious and socially responsible. By embracing innovations like AI, ML, and Data Analytics, banks can start to optimise their operations, leading to greater efficiency. Enhanced data insights are enabling banks to make more informed decisions, minimising risks and improving resource allocation. Remote and digital banking options are reducing the need for physical infrastructure and paper-based transactions, contributing to lower carbon footprints. Fintech solutions are empowering banks to offer green financial products and services, promoting transparency and encouraging customers to make sustainable choices. By aligning technology with sustainability goals, banks can play a pivotal role in fostering sustainable development, addressing global environmental challenges, and driving sustainable practices that contribute to a greener future.

The European Union (EU) has introduced a new law which requires all large companies and all listed companies (except listed micro-enterprises) to disclose information on what they see as the risks and opportunities arising from social and environmental issues, and on the impact of their activities on people and the environment. The Corporate Sustainability Reporting Directive (CSRD), which came into effect on 5 January 2023, requires first companies to comply with the new rules during the 2024 financial year and publish reports in 2025, aims to modernize and strengthen rules for social and environmental reporting by companies. The initiative aims to establish a common framework for reporting sustainability information to enhance transparency and accountability in corporate practices related to sustainability and environmental, social, and governance (ESG) factors, aligning the region's economic activities with long-term environmental and social goals. By implementing the CSRD, investors and stakeholders will be able to gain access to reliable information to assess companies' impact on people and the environment, as well as evaluate financial risks and opportunities related to climate change and sustainability issues.

Where to start?

As tech continues to evolve, the successful integration of new technologies and digital tooling will undoubtedly be a defining factor for banks seeking to stay competitive and deliver unparalleled value to their customers. However, it's important to note that not every technology will be relevant to your bank.

When considering the adoption of new technologies or tooling in the banking sector, a strategic approach is essential to ensure successful implementation. Firstly, banks should conduct a thorough assessment of their current technological infrastructure and identify areas where improvements are needed. It's crucial to align the chosen technologies with the bank's specific goals and objectives, focusing on solutions that address existing pain points or open up new opportunities for growth and innovation. After selecting the most suitable technologies, a clear roadmap for integrating into the organisation should be developed.

Emerging technologies will continue to play a pivotal role in reshaping customer experiences and operational strategies. The rapid pace of innovation necessitates banks to stay vigilant about what's up and coming in the tech sphere. Embracing and leveraging these advancements strategically will not only enable banks to stay competitive but also can unlock new avenues for growth and long-term success.

CHAPTER 4

Methodology

The research was conducted by the independent market research company Censuswide, with 600 C-suite banking executives 18+ across the United States, the United Kingdom, the Netherlands, and Australia during 12.04.2023 - 25.04.2023. Censuswide abide by and employ members of the Market Research Society, which is based on the ESOMAR principles.

CHAPTER 6

How Mobiquity can help

Sustainable banking is data driven. Everyday banking services are affected by the sustainability trend. The increase of mobile banking and online payments supplies banks with vast amounts of real time data. This real time data has generated a platform for digital applications and tools. Banks can interact, educate and communicate with their clients in many new ways.

As banks are moving towards being more sustainable in a measurable way, new technologies such as advanced data analytics, blockchain or artificial intelligence can help banks to evaluate and reduce their environmental impact.

Artificial intelligence (AI), advanced data analytics, tokens, and distributed ledger technologies (DLT) are promising solutions for a sustainable finance industry with a wide array of use applications such as:

- Analysing a bank's portfolio on sustainability / ESG.
- Measuring the impact of green financial products.
- Supporting consumers to purchase sustainable products and providing greener investment choices.
- Utilising big data to measure the environmental impact of banks' assets.
- Leveraging big data scraping with smart decision-making tools to reduce management costs.
- Implementing green investment strategies.
- Applying transaction-based carbon accounting.
- Adopting carbon insight tools.

Our sustainable banking work

Creating an innovation roadmap and delivering it

Carbon Bank is an initiative to implement decarbonization strategies in line with the Paris Agreement through business change and innovations. Carbon Bank accelerates sustainable food production with initiatives that reduce and remove carbon emissions from the atmosphere. It contains multiple value propositions focussed on both the enterprise market (Carbon Farming and Decarbonizing Supply Chain) and retail market (Carbon Insights).

Helping consumers understand their CO2 footprint

For a large European bank we created, designed and built a digital application to help banking clients to understand their CO2 footprint. The digital carbon insights application integrates with the banks mobile banking application for consumers. The carbon footprint insights are based on the real transaction history.

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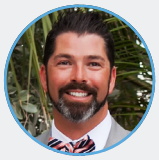

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