USE OF AUGMENTED REALITY TO FOSTER REALISTIC INTERACTIONS IN THE BANKING SECTOR
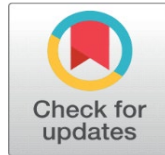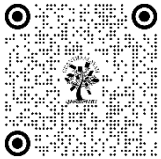
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ABSTRACT

The banking industry is undergoing rapid transformation, much of which has been driven by customer-facing technologies. This commentary provides an in-depth analysis of the adoption of AR is affecting the financial sector, focusing on its main influence on realistic client interactions. As a result, an AR-based approach could offer a solution to enhance the customer experience. AR technology has reached a level of maturity where the banking sector can effectively leverage it to deliver services, particularly by providing a more realistic and immersive experience for customers. Ultimately, we conclude that integrating AR into banking services promises to create a more dynamic and engaging experience, effectively bridging the gap between the physical and digital worlds.

Keywords: Augmented reality (AR), Realistic AR experience, Metaverse, Financial Services, Innovation

1. INTRODUCTION

Scientific and technological progress continually transforms society, while society plays a crucial role in supporting, governing, and guiding innovation (Guston and Sarewitz, 2020). Technology introduces a wide range of innovation in the emerging smart banking industry also (Arjun et al., 2021; Chandio et al., 2013). Axis bank (2016), as one of India's top private-sector banks, has been a leader in embracing innovative technologies, used Augmented Reality (AR) to improve customer experiences and optimize its services. Augmented Reality (AR), which enhances user experiences through immersive, interactive settings, has the potential to transform how customers interact with financial services, products, and even physical bank branches. On August 24th, 2016, Axis Bank India introduced an Augmented Reality (AR) feature in its mobile app, integrating AR functionality into the "Near Me" feature.

Hassan et al. (2021) Customers must be encouraged to use mobiles for banking operations, and the reluctance to embrace this innovation highlights the need to investigate the factors that influence individuals' intention to use mobile banking. As with the help of AR, Customers don't need to rush to market for shopping they can comfortably sit in front of their computers/laptop by the use of AR, as AR is a promising technological tool that is providing fascinating experience to customer that is closer to the experience of physical stores (Caboni and Hagberg, 2019). Likewise, AR can improve the accessibility, engagement, and usability of financial services also by combining digital and real-world features. Accenture, (2022) a growing metaverse economy allows banks to handle payments and provide customized financial solutions in this new virtual area. Accenture's paper on banking prospects in the metaverse highlights the

considerable potential for innovation in goods and services, as well as the opportunity to re-establish communication channels that have been missed owing to greater automation and the closure of physical branches. The digital transformation in the banking sector, including technologies like virtual reality (VR) and augmented reality (AR), has significantly altered how consumers engage with banking services (Verhoef et al., 2021). Additionally, artificial intelligence has enhanced the banking experience by at least 11% in India's emerging economy (Kuswaha et al., 2021). While the metaverse's influence on banking and financial services is unknown, it has the potential to reshape the industry. Banks cannot afford to be vacant; they must investigate the metaverse's potential for creating immersive and engaging client experiences (Dwivedi et al., 2022).

The major goal of this study is to create and evaluate the amount of technology acceptability in banks, especially by incorporating Augmented Reality (AR) to improve digital services alongside traditional physical bank branches for banking clients.

2. LITERATURE REVIEW

Tan and Lim (2016) Augmented reality (AR) essentially capture the real-world environment and overlays digital information onto it. In other words, it blends the physical and virtual worlds, allowing both synthetic and natural light to interact with objects in the real environment. AR has proven to be more cost-effective compared to other technologies or devices. Interactions in AR occur through a camera on any device, such as a tablet or smartphone. Additionally, AR doesn't require high-tech cameras to function, making it more accessible to a broader range of consumers. Recently, AR has seen rapid growth within the banking industry as shown in table1.

TABLE 1. The Trend of AR in the Domain of Banking

Authors	Method/Model/Techniques	Description	Advantages
Banna and Alam, 2021	Banking stability and digital financial inclusion (DFI) were analyzed using a sample of 253 banks from four ASEAN countries, covering the period from 2011 to 2019.	Digital finance in the ASEAN banking sector fosters long-term economic growth, helping to maintain financial stability during economic disruptions like the Covid-19 pandemic.	Positive impact on customer experience and customer behavior. Motivate them to use new immersive technology and change their behavior decisions.
Basdekis et al., 2022	ATMs (Automated Teller Machines) and NASDAQ (the world's first computerized stock market) which backs Regulatory Technology (RegTech) firms, all play a crucial role in providing security.	The rapid growth of FinTech and its impact on the Greek financial system.	The use of AR takes into account the technical, operational, and ethical challenges faced by financial institutions to streamline decision-making. Enhance client experience, boost operational efficiency, and gain a competitive edge.
Shams et al., 2020	checking account balances, transferring funds, paying bills, depositing checks, and even applying for loans, all through a mobile banking app or web-based platform	Mobile banking services offer exceptional quality, strong support, fast speeds, robust security, and 24/7 availability. Additionally, they ensure secure transactions, providing a high level of protection for users.	It is more trustworthy, transparent and life compatible. Make it easier for customers to spend money securely while purchasing.
Kumar and Prakash, 2019	Adopting sustaining policies and framework for streamlining the performance of banks from traditional ways to newest ways.	Banks should implement the international code of conduct for sustainability to ensure sustainable banking performance.	AR enables banks to prioritize customer retention, reducing the costs associated with high customer turnover. Improves the hunger of innovation in banks.

| Dong et al., 2020	The effect of Internet finance on commercial banks, including the development of an Internet Finance Index and a comprehensive performance index for commercial banks.	Internet finance provides commercial banks with benchmarks for setting reform goals, motivating them to innovate and move away from traditional practices.	Internet finance has intensified competition in the financial services market. Privacy and security risk is easily managed.
Lee et al., 2021	Credit, capital raising, and deposits, along with investment management, payment, clearing, settlement, and market support with the help of technology	Fintech innovation enhances both cost efficiency and technology for banks. Innovations in market support services have the most significant impact on improving bank efficiency and driving technology adoption.	Customers can easily engage with banks; can easily resolve issues they are facing. Enable them to access banking services from anywhere in cost effective way.
Windasari et al., 2022	Considered digital only banks – virtual branches without having physical existence. All services, everything in online mode with the help of metaverse including – AR, VR	AR has the potential to revolutionize checkout and payment processes which is a good fit of consumer needs and provide solutions for financial management problem.	Allow banks to improve client experiences. The financial services industry offers tremendous prospects for innovation, expansion.
Carstens et al., 2021	DNA (data-network-activities) loop which is data-, direct interactions between users and the data generated as a key by-product of these interactions.	The competitive performance and efficiency of the payment system, the reduction of financial risks, and the oversight of operational resilience and consumer protection.	Drive business growth by improving access to capital, reducing transaction. Enabling businesses to swiftly seize market opportunities.
Bankuoru et al., 2021	Mobile banking and digital banking (Account management, loan processing, payment transactions, and investment services)	Customer happiness and loyalty are influenced by the qualitative aspects of digital banking services, such as efficiency and simplicity of use.	Improve service quality of banks like – privacy, security and reliability. Ethical issues resolved after using it.
Dwivedi et al., 2021	Cryptocurrency, digital payments, online banking, peer-to-peer lending, robo-advisors, and blockchain technology.	Financial technology requires key elements such as leadership commitment, change management, government regulations, and stakeholder engagement for successful implementation.	Speed up the performance of banks. Reduces risk of errors and provide customized services to customers.
Shaikh et al., 2022	Disruptive technologies like AI, 5G/6G, Blockchain, Metaverse, IoT, etc.	Fintech has evolved due to technological disruptions and advancements in data science, cybersecurity, computing, and communication.	Data can be easily handled assisting in decision making. Provide immersive experience to customers.

3. SYSTEM OVERVIEW

Innovations in information technology (IT) are reshaping financial services, with new tech competitors emerging in traditional banking functions such as lending and payment processing. Meanwhile, established players are adopting digital transformation strategies to maintain their competitive edge. According to KPMG Report (2019) Figure 1.1, Technology will personalize banking experiences across various devices and applications and a range of advancements will shape the future, transforming aspects of banking into something unrecognizable compared to today. This evolution will impact channels, services, and the overall role that banks play in our daily lives.

According to McKinsey & Company (2020), to meet the increasing expectations of customers and stay ahead of competitive pressures in the AI-driven digital era, the AI-first bank will provide intelligent solutions and experiences,

such as suggesting actions and predicting or automating critical decisions and tasks. These experiences will be personalized, offering relevant and timely services based on a deep understanding of the customer's past behavior and context. Moreover, the bank will be fully omnichannel, seamlessly integrating physical and digital environments across multiple platforms. Figure 1.2 illustrates how this type of bank could interact with a retail customer throughout the day.

Figure 1.1 Emerging Technology in Banks (The Future of Digital Banking Report by KPMG, 2019)
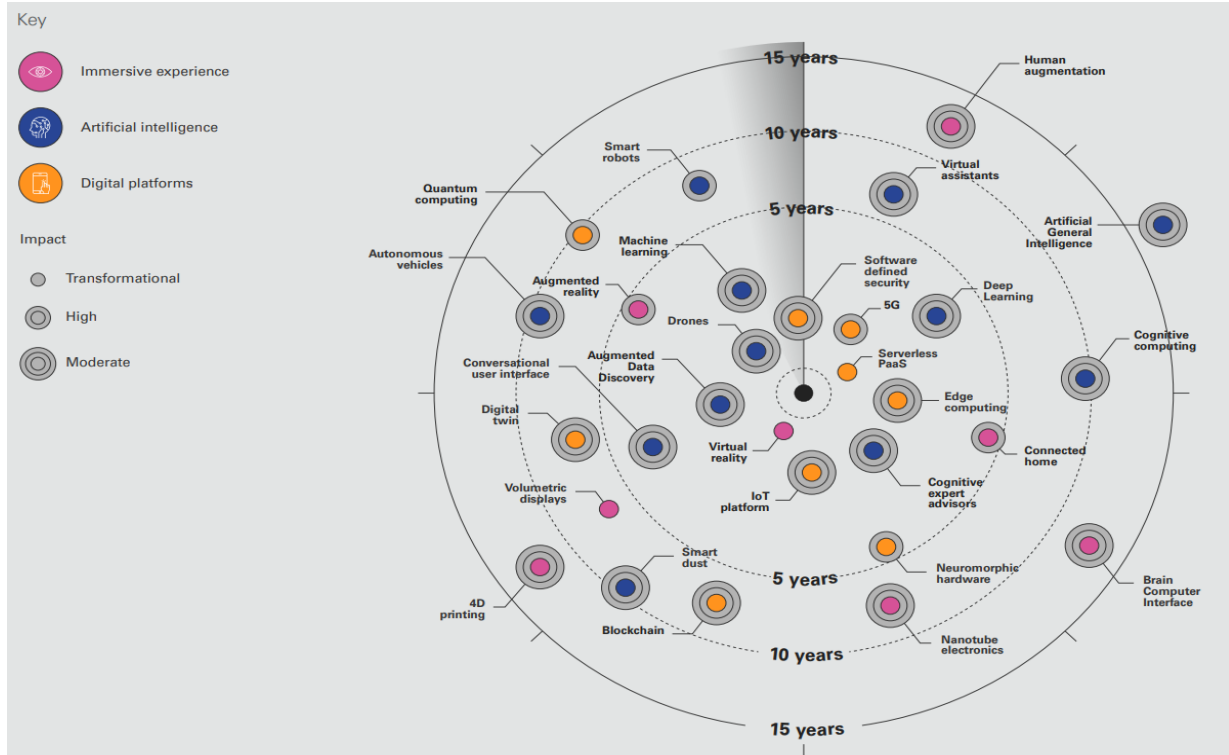
Source: The Future of Digital Banking Report by KPMG, 2019

4. EVALUATION AND DISCUSSION

AR overlays digital information onto the real world, allowing users to interact with and experience data in a way that seamlessly blends the digital and physical environments.

Personalized Interaction: Biswas et al. (2020) AR can guide customers through a bank or ATM, directing them to specific services like loan consultations or account inquiries. It can also offer personalized financial advice, such as savings tips, investment options, or mortgage plans, tailored to a customer's financial profile and behavior.

Financial Education and Engagement: Buhalis et al. (2022) AR can simplify complex financial concepts by visualizing them in an engaging and easy-to-understand way. For example, an AR app could visually demonstrate how interest rates impact loan payments over time, or show users how investments grow under different scenarios.

Streamline the services: Roggeveen and Sethuraman (2020) AR can help reduce friction in financial services by streamlining the customer journey. For instance, customers could quickly access important financial information by simply pointing their smartphone at documents or objects using AR technology, eliminating the need for lengthy forms or complex navigation processes.

Figure 1.2 How AI transforms banking for retail customers (AI-bank of the future: Can banks meet the AI challenge? report by Mckinsey and company, 2020)
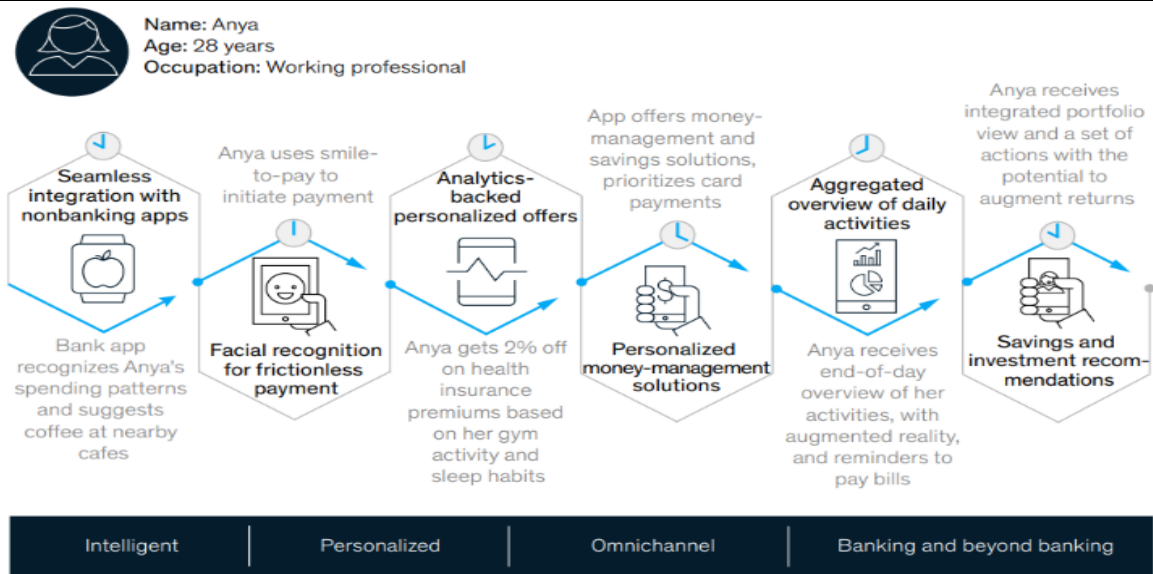
Source: AI-bank of the future: Can banks meet the AI challenge? report by Mckinsey and company, 2020

Branch Experience and Remote Engagement: Dieck and Han (2022) augmented reality can enhance in-branch experiences by enabling virtual tellers, interactive displays, and even virtual meetings with financial advisors. For example, a customer could use AR glasses to receive real-time information about financial products while interacting with a branch agent, creating an engaging and informative experience.

Virtual Tour: AR offers a unique "try-before-you-buy" experience for financial products. Customers can use augmented reality to visualize the impact of different financial solutions on their finances before making a decision. For example, AR can help individuals see how a loan or mortgage might affect their monthly payments or overall financial health (Biswas et al. 2020).

Enhancing Customer Support: AR can also improve customer support by providing interactive training and real-time assistance. Customers can use augmented reality to troubleshoot issues and navigate financial services more effectively (Lee and lee, 2020).

5. CONCLUSION AND FUTURE WORKS

The exploration of AR in banking reveals its potential to offer customers a more realistic, immersive, and personalized experience, improving consumer encounters by making them more engaging and interactive. AR has the ability to transform how customers interact with financial institutions, from enhancing financial literacy to streamlining processes and improving customer service. However, one major barrier to the widespread adoption of AR, particularly in financial services, is ongoing concerns about privacy and security (Hernandez et al., 2020). Individuals performing sensitive tasks, such as managing their finances or conducting online transactions, continue to face significant risks from personal data breaches and cyber-attacks. Ensuring the safety and confidentiality of user data while still providing the dynamic, interactive experience AR promises is crucial for its future growth and success in the digital world. As technology evolves, the integration of AR into banking services promises to deliver a more dynamic and engaging experience, seamlessly bridging the gap between the physical and digital worlds.

CONFLICT OF INTERESTS

None.

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