**Enhancing Customer Experience and Efficiency in the Banking Sector through Augmented Reality**

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**Introduction**

Technology has significantly changed how banking was conducted only a few years ago. Although the epidemic hastened the deployment of technology across businesses and sectors, it has also greatly increased our reliance on these developments. According to the Reserve Bank of India's most recent Annual Report 2020-21, for instance, the total volume of digital transactions in 2020-21 were 4,371 crores as opposed to 3,412 crores in 2019–20, demonstrating the resilience of the digital payment system in the face of the pandemic crisis.

We are seeing an entirely new range of new and faster financial options as these technological breakthroughs continue to challenge conventional banking practices. The majority of financial transactions are now made online, through mobile wallets, paying bills electronically, and other means. Artificial intelligence is also at the heart of the development of digital banking as a result of rising customer demand for digital banking services. These developments are primarily being followed by the development of fin-tech and neo-banks, which are simplifying and streamlining the entire banking process for customers.

# Though these are currently in a very early stage of development, the potential for augmented reality technology adoption in the banking sector are only constrained by your imagination. Giving customers complete authority over any actions and transactions they could carry out at home is the ultimate goal. Technology experts who think that bank branches as we know them today are extinct have hybrid branches in mind.

**Need in Banking Sector**

Users of augmented realities can layer digital content over the physical world. AR technology uses existing cell phones or head-up displays to enhance the immersive experience. Through the millions of compatible smartphones already in use, banks and other financial institutions can engage customers and offer fresh, engaging experiences. Financial service providers can use AR to engage current and potential banking customers.

The necessity for augmented reality in the banking industry may be inferred from the fact that it will allow customers to examine the information in a clear, interesting, and immersive way. This presents a hurdle for the banks, which AR can assist them overcome.

Banks are struggling to provide customers more options and to give them more insight into their spending habits and behaviours. Although there have been problems with banks in this area, AR has the potential to have a significant influence since it will empower people to make wise spending decisions. It will provide users a fresh perspective on how to evaluate financial data and information..

**Challenges with the Implementation of Augmented Reality in Banking**

* Banks might need a lot of things in order to develop a practical augmented reality solution. Banks may find it challenging, and without addressing these technical limitations, AR cannot be fully visualised.
* Currently, there are no such regulations that inform companies and customers about the kinds of augmented reality applications that are allowed to be used, as well as the processing of data. Therefore, the information could be exploited maliciously.
* Although augmented reality (AR) is a popular issue for techies, the general population is uninformed of the technology. Lack of public understanding could result in privacy and security issues when adopting AR technology..
* The fact that augmented reality depends on the collection, analysis, and redistribution of many different types of data, particularly through the usage of Big Data, cause issues  about security and privacy rights.AR can also be used to create a more immersive and engaging banking experience, such as through interactive AR games and AR-enhanced financial educational experiences.

# This study examines how augmented reality (AR) technology could revolutionize the customer experience and operational effectiveness in the banking industry. The goal of the study is to examine the many uses of augmented reality (AR) in selected global banks, its influence on client engagement, and its capacity to simplify internal procedures. This research looks into successful AR implementations in the banking sector in order to identify best practices and obstacles to AR solution uptake. For banks and other financial institutions trying to use augmented reality to stay competitive in the ever changing digital market, the findings will be a vital source of information.

* **Axis Bank – (Augmented Reality Navigation to access ATMs, Branches, and Food Outlets)**

Axis Banks mobile banking application offering several augmented reality features. Customers can set a geographical radius using the 'AR View' option in the 'Near Me' page, and the banking app will display them the nearest ATMs and branches as well as directions to an ATM.

They sought to encourage their consumers to use other incentives, such as special discounts at restaurants and eDGE reward points, in addition to cash withdrawals from ATMs. They also provided directions to nearby food outlets and allowed users to pay with their reward points at these partner locations.

Axis Bank can employ comparable augmented reality capabilities to help customers find nearby branches and ATMs, as well as use its navigation services to improve brand’s image. One can also encourage customers to pay with their wallets and cards, keeping them connected with your banking services.

* **Westpac Bank-(AR Data Visualization, AR Account Management, Budgeting, AR payment gateway)**

Embracing the potential of Augmented Reality technology and pushing it to a global scale, with a slew of interactive features that have transformed the way clients handle their bank accounts. Customers can use their phone's camera to scan their debit or credit card using their app.

Customers can view their current amount, spending in the last two weeks, spending categories, and future credit card payments due overlaid on that card. They can also make their payments on time using the Augmented Reality payment gateways.

Going above and above, the user interface of this banking software provides clients with vital insights and transaction details via augmented reality data visualizations that assist them understand their spending trends over time. Customers can shop using Augmented Reality utilizing their Hot Points catalogue, which is also incorporated into the banking app.

They've also implemented an augmented reality navigation capability to help consumers find the closest ATMs in all of their international locations throughout the world.

* **Citi Bank's – (Holographic Workstation - Using AR Data Visualization for Finance and Trading)**

While most AR solutions in the banking industry are aimed at end users who use banking apps on their smartphones, a Proof of Concept aimed at financial traders.

They designed a 2D-3D integrated system using Microsoft's HoloLens technology that allows financial traders to visualize real-time financial data and records using holograms, as well as monitor and trace past trends of stock indexes in order to make financial decisions based on them. Users can also share their interactive, augmented reality data visualizations in real time with others in order to collaborate and analyze markets.

The Augmented Reality technology, which works on voice instructions, also allows for real-time communication and visual data sharing in the actual environment.

The Holographic Workstation is the name given to this entire arrangement, which attempts to improve the efficiency of financial trades. This example demonstrates how banks can engage groups of users who are not direct customers but can connect with their banking and financial services.

* **Commonwealth Bank-(AR Property Guide app - Insights on Real Estate; Home Loans)**

Commonwealth Bank developed its AR tool, which has data on around 95% of residential homes in Australia, with the goal of making the process of choosing a new home in Australia easier. Using the Augmented Reality real estate app, users can scan a property near them in real time and obtain all relevant information, including detailed suburb profiles revealing demographics, median price, buying/selling conditions, property hotspots, and capital growth trends, allowing buyers to gain deeper insights on a location and whether it will suit their lifestyle.

* **Standard Chartered – (Breeze Living - Sharing Coupons and Discounts)**

Standard Chartered devised a novel strategy to engage with Chinese customers Breeze Living's AR-enabled mobile application. They collaborated with local coupons sites to establish an open social network for finding and sharing coupons and discounts from all around China.

They invited users to sign up and create 'Tribes' in which they could distribute these vouchers with their pals. They used Augmented Reality to imitate kites flying across the skyline. Users could catch those kites to get exclusive offers all across the country. Users could also flaunt their offers to their ‘Tribes’ using the social media aspect of the AR app.

* **Deutsche Bank – (Augmented Reality Marketing Campaign)**

Unlike the previous instances in this article, Deutsche Bank's augmented reality marketing campaign engaged clients in an unusual and favorable way. They installed a big Magic Mirror powered by Augmented Reality in the Alexa Mall in Germany to provide clients with visual surprises.

Customers were taken to the sea as they surfed in Augmented Reality, had the opportunity to meet unicorns in real (well, virtual) life, and finished up playing virtual football as they stood in front of the Mirror. People were transported to an alternate dimension and recorded themselves participating in these enjoyable activities.

* **Desjardins Bank – (Financial Literacy using Augmented Reality Persona)**

Desjardins Bank's Insurance division decided to make retirement planning enjoyable and uncomplicated for its customers. They developed an Augmented Reality application known as.

It is propelled by the imaginary character 'Penny.' Penny's only responsibility is to assist and educate customers about various strategies of saving for their eventual retirement, regardless of their current stage of life.

Using a smartphone's camera, this fictional character comes to life by pointing at a customized bank note and provides its customers with a variety of learning opportunities to pick from. Penny informs customers on how to get started using interactive videos and accompanies them through the entire process, whether they start early or consistently contribute to their retirement.

* **Visa – (Augmented Reality Payment)**

Visa, the world's biggest payment provider, used Augmented Reality technology to demonstrate how payments can be connected with any service to enable smooth and immersive payments.

This was shown at Mobile World Congress. They showed the AR software over a simulated map of a city by integrating it with a food ordering service. Users can use the AR app to point to certain areas of the city and select a food shop.

Then, users can browse the outlet's menu and look at the various items before placing their order. Users can use AR to make quick payments after placing an order.

Visa. These applications assist financial organizations in providing functionality built on top of their payment systems.

* **Capital One – (AR app for Car Loans)**

Capital One Bank introduced a service that allows customers to travel to retail vehicle showrooms or simply walk down the street and point to any car to see visual details superimposed on the car.

Year, model number, and brand of the car will appear on their screen to assist customers in making a purchasing decision. Users can pre-qualify for a car loan, and the app will then provide them tailored pricing depending on their eligibility, preferences, and financial health.

* **BNP Paribas Fortis –(Introducing & Comparing Products & Services)**

Bank employees face a significant challenge in remembering the specifics of all the products and services they provide. To assist their employees, BNP launched an interactive print app that recognizes bank employees' photos and overlays videos explaining various bank products on their photos, eliminating the need for employees to remember details about all services.

* **ASB – (Recruiting Banking Talent Using AR)**

Last, and perhaps most surprisingly, ASB has used Augmented Reality technology in the banking business to attract corporate bankers for their organization. In order to entice high-potential people to apply to their bank, the bank intended to communicate their story and inventive spirit in all future undertakings. A potential candidate can scan the leaflet and bring it to life using the AR app.

The candidate can next see the bank's Executive General Manager speak about the bank's beliefs, future ambitions, and why their bank is the ideal place for a high potential prospect to work. Using augmented reality in recruitment and brand communication is not the most obvious use-case, but it is a really novel one that can help your bank stand out from the crowd.

**CONCLUSION**

Banking sector is now using new technologies to provide better services to customers. The banking sector realizes that customers’ needs have changed with the advancements in technology and their own needs. IT has allowed for improved banking products, competitive markets, implementation of consistent methods for control of threats and has aided mobile banking services to reach geographic distance and varied markets.

Modern technology is causing a significant revolution in the banking industry. It gives them the chance to introduce new tools and methods that are associated with augmented reality.,

The growing need and benefits of AR in the Banking sector are no debatable. The banking and finance industry's embrace of augmented reality has greatly aided these institutions in stepping up and providing their customers with a unique experience.

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