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Mixed Reality: A New Era in Banking

Abstract

Fintechs and other digital disruptors have set high expectations for innovative customer experience, creating challenges for traditional banks. New entrants are capitalizing on the unprecedented growth of digital technologies and limited regulatory oversight. While banks are trying to catch up through analytics and artificial intelligence (AI), in our view, the next most significant technology shift will be mixed reality (MR) – a combination of virtual reality and augmented reality. To lead in this transition, banks must hop on to the MR bandwagon early. This paper explores how banks can create smart, personalized customer experiences by leveraging their analytics and cognitive ecosystems.

Leveraging Mixed Reality in Banking and Financial Services

Mixed reality refers to a next-generation digital experience that combines augmented reality (AR) and virtual reality (VR). It blends together the physical and virtual worlds by overlaying smart 3D digital objects – holograms – in the physical world, allowing people to interact with them through a unified headgear. At a nascent stage currently, this technology will radically change customer behavior, perhaps more swiftly than the smartphone. With the internet of things (IoT) making rapid changes to our material world, digital experiences that combine mixed reality and IoT will drive the next wave of change in financial services.

Smart devices have changed customer behavior significantly. For example, customers now read reviews before purchasing a product or service, then look for offers, and finally share their experience on social media. Also, smart devices have simplified many cumbersome processes. In the financial services industry, traditional banks have been slow to respond and adapt to these behavior and technology changes, mainly because of banking regulations, inflexible legacy systems, and rigid organizational structures in turn leading to reduced customer engagement across channels.

Banks also face difficulties in presenting complex data over the limited real estate available on mobile devices and personalizing offerings to suit individual customer contexts. The advent of mixed reality spanning smart digital objects offers innovative ways to take customer engagement and experience to the next level.

Personal finance management (PFM)

Visualize this: a customer lies on his couch wearing his MR headset and all his investments, savings, and so on are visible on the wall as an interactive dashboard (see Figure 1). Also, an accurate financial health report is displayed with accompanying product suggestions in line with his financial goals. Now, the spouse comes along, also wearing MR headgear, and overlays his or her PFM data from a third-party bank on the dashboard. With this combined view, an innovative, gamified family budgeting experience can be created, replacing boring spreadsheets. Data from this type of interaction provides unique insights that can be leveraged to provide personalized offers to individual customers, thereby unlocking exponential value for customers as well as banks.
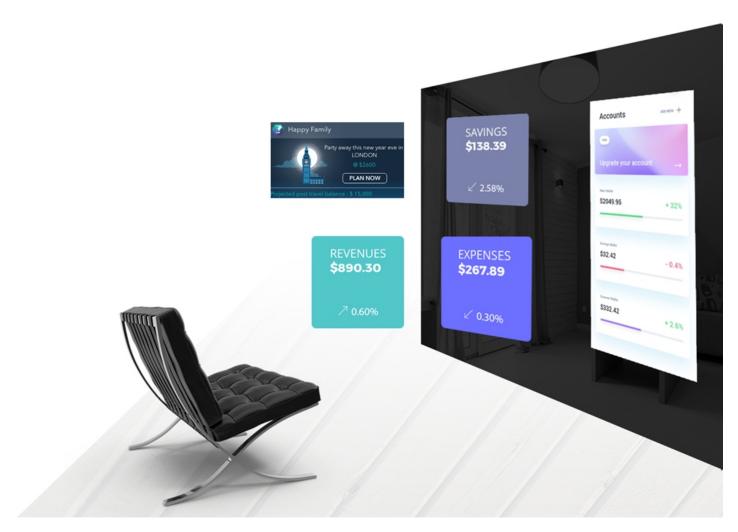
Figure 1: Smart Financial Objects (Holographic Forms) on a Physical Wall

Financial trading

Traders look at various indexes and overlay mathematical functions on indices to decide on trade value. MR 3D interactive holograms can represent this data and overlay the price of trade along with historical information, based on which traders can quickly decide to increase or decrease the volume. Such granular visualization of trades can be achieved only through a combination of AR and VR.

Customer support – settling disputes

Customers are often unable to recall a transaction and reach out to the call center to verify if a charge appearing in their account is authentic. The helpdesk agent then helps the client by giving more information on the purchase like the merchant's name, location, and others. With MR, the transaction can be virtually recreated in 3D through third-party APIs spanning street view,

weather data, local events, and so on, enabling the customer to literally relive the entire transaction! This kind of unique, immersive experience reduces repeat calls, enhances efficiency, and increases customer engagement.

Preparing for the Inevitable

Given its immense advantages, we envisage mixed reality to be at the forefront of customer experience transformation in banking and financial services. Banks that proactively prepare for this by establishing the requisite technology and IT architecture will gain a competitive edge and forge ahead of their peers.

To create the best experience through MR, banks must build an intelligent personalization engine powered by big data technologies. This engine must have a robust, innovative, flexible design process with the capability to cull out smart, actionable customer insights from the data fed into it. During the last decade, banks have invested heavily in data analytics and AI technologies, which can be leveraged to build the personalization engine.

The one and only tricky piece in the puzzle is the design methodology, which is critical to creating customer-centric offerings. For mobile or desktop applications, user experience designers work with a definite set of parameters since it is a 2D space, whereas MR uses real-world surfaces to display virtual objects or models, in 3D space. A successful design system should create interactions that feel alive, magical, and give full control to the user. Also, the design must consider the amount of data to be displayed in the field of view as the view cannot completely block the real world. These natural interactions trigger cognitive and cybernetic dynamics that people experience in real life, thus persuading them that they are not interacting with abstract, digital elements, but with real objects. This results in less cognitive load, and enhances focus on content.

All this begs the question: what will a future bank look like? Mixed reality will redefine banking and make it more personal and tangible; for instance, potential home buyers will be able to teleport themselves into their dream homes and experience living there while banks process their mortgage loans. Similarly, car buyers will be able to experience driving that car they've always wanted through MR headsets, while banks overlay optimal auto loan by the side. Customers planning a holiday will be able to virtually experience their dream vacation with banks

indulging them by overlaying tailored holiday packages. Such immersive, natural interactions will allow banks to participate in customers' lifestyle choices and drive sales of their offerings.

Key Aspects of a Robust, Flexible Design

Banks must focus on four key design aspects – the physical (real world) space, user inputs, the appearance of the 3D model, and sound – to create a design that enables customer-centric offerings. This in turn will require banks to focus on some key aspects.

Feature sets

Gathering requirements is crucial. MR designers should think from a 3D perspective to transform use cases into holographic forms. Segmentation data from the analytics system must be overlaid onto the use cases to narrow down the feature set. Each feature is then refined through multiple iterations spanning product design and business vision guidelines

Storyboarding

This is a classic technique to visualize a scene that eventually represents a story. In MR, these scenes should be drawn through the user's field of view. Adding specifications of the four elements will help developers and clients to visualize the holographic scene better than traditional wireframes.

Prototyping

Converting the storyboards into prototypes will enhance the success of a user story exponentially; but there are no quick tools as of now. Since MR is about placing virtual objects in the real world, prototyping using origami or clay models will give designers a clear understanding of the scene; additionally, use of clay models can also help designers validate the concepts.

Typography

If you have seen Benedict Cumberbatch fishing through his mind palace in the television series, Sherlock, you have a good idea of how 3D text can make an impact in an MR environment. However, the biggest challenge in creating 3D typography is the scale and position. Identifying the correct scaling factor for 3D text is critical to display them clearly in the field of view. Several MR providers like HoloLens and Magic Leap provide typography toolkits to help achieve the right scale factor.

Navigation

Navigation in MR occurs through gestures and voice commands, and they must be agreed upon for various actions and mapped back to the objects that get manipulated. Creating the voice commands in the form of sentences feels more natural; for example, 'play sound louder' rather than 'increase volume'.

Flow diagram

UX designers share the completed prototype with developers to code; flow diagrams carry specification on all design aspects in each scene and their corresponding mappings. Typography and voice scripts must also be included. Sometimes it is difficult to control these details in flow diagrams; in such cases, separate typography and voice over scripts must be provided, but they should be linked to the corresponding scene to give a birds-eye view of the entire application.

Mixed Reality Set to Bring About a Revolution in Banking

In our view, MR, though still an evolving technology, will be an integral part of the future financial services industry. MR allows firms to embed solutions into the consumer's physical environment; this could well prove to be a boon for banks looking to personalize the banking experience, improve customer experience, and create exponential value. Traditional banks would do well to become early adopters and gain an edge over disruptors.

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Ilakkiaselvan Subbiah is a User Experience Consultant with TCS' Banking, Financial Services, and Insurance (BFSI) business unit. He has more than seven years of experience with expertise in the retail and channels space, and is currently creating next-generation banking experiences within the Open Banking Strategic Initiatives group. Ilakkiaselvan has previously worked with leading multinational banks in retail banking. He has a Master's degree in Software Engineering from PSG College of Technology, Tamil Nadu, India.

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