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# XR technology's potential in finance

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## Executive Summary



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*VR, AR, MR and other variants of XR have long been high-profile technologies. While they are being used mainly in certain sectors, including travel, real estate and manufacturing, some interesting XR initiatives are afoot even in financial sector without visible products.*

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### What are VR, AR and MR?

XR (extended reality or cross reality), an umbrella term that encompasses VR (virtual reality), AR (augmented reality) and MR (mixed reality), has long been a high-profile technology.

VR uses computer graphics (CG) to simulate, in a virtual space, worlds that are difficult to experience or do not even exist in reality, giving users the perception of being immersed in that space. Users wear a VR headset with a small built-in display that covers their eyes. While the headset prevents users from seeing anything but its display, it has sensors that detect head movements, through which users can shift their visual point of view in any direction within a 360° 3D space.

AR made a big splash in 2016 when the Pokémon GO game app became a viral sensation globally. AR augments the real world by superimposing computer-generated imagery and video streams on the real-world environment before the user's eyes. Whereas VR's domain is virtual worlds, AR is grounded in the real world. AR's primary focus is aiding users' real-world actions and perceptions by injecting virtuality into reality.

Lastly, MR is a general term for technologies that fuse virtual worlds with the real world. It is sometimes classified as an AR subtype. MR incorporates real-world information into CG-generated artificial virtual worlds to merge CG with physical objects, enabling users to see and manipulate the resultant hybrid reality.

### XR's financial use cases

VR's most obvious use cases are gaming, movies and other forms of entertainment as exemplified by Pokémon GO and Sony's PlayStation VR, the latter of which was almost constantly sold out for months after its October 2016

release.

However, XR use cases are not limited to entertainment. Companies in other industries also are starting to use XR. For example, VR is being used in the travel industry to promote overseas travel products and in the real estate industry to stage virtual tours of yet-to-be-completed properties. VR is also being used in educational settings such as employee training programs to make the subject matter more vivid than conventional classroom instruction.

AR also is starting to be used to increase worker productivity and reduce worker errors by reminding workers how to properly perform work tasks by displaying step-by-step instructions on AR smart glasses worn by the workers. Jobs for which AR is being used in this way include manufacturing facility maintenance and order picking in warehouses.

In the financial sector, XR technology is just starting to be used. Many financial applications of XR are still in the proof-of-concept stage, but a number of interesting XR initiatives are already underway in the financial sector as below.

## VR

Singapore's DBS Bank and Century 21 Hong Kong, a residential real estate brokerage, have partnered to offer a service that helps prospective homebuyers in Hong Kong both shop for homes and obtain financing. With DBS Home360, a smartphone app developed by DBS, homebuyers can scroll through Century 21's property listings and preview 360° VR images of any homes that catch their fancy. They can also use the app to qualify for a home loan, estimate homeownership costs and finalize the loan agreement. DBS Bank's objective in developing the app was to capture customers by gaining involvement in their home-buying process before they have selected a home to purchase.

In Japan, GMO Click Securities released GMO-FX VR Trade, a smartphone app used together with VR goggles, in late January 2017. The app simulates a virtual trading room that users navigate with their eyes. Users can zoom in on and out of forex charts, select currency pairs and place buy and sell orders, all through an eye-tracking interface.

## AR

Capital One has released its own auto loan app, Auto Navigator. Users first enter

their age, annual income and other personal information into Auto Navigator to prequalify for an auto loan. Next, they can search the inventory of participating dealers near their home. When users visit a dealer to look at vehicles in person, if they scan a vehicle's QR code with their smartphone camera, Auto Navigator generates a personalized payment plan, including down payment and monthly payment amounts, for that vehicle. Capital One's objective in launching Auto Navigator was to facilitate the entire process from shopping for a car to applying for a loan.

## MR

Citigroup and 8ninths, a US startup, have co-developed a holographic workstation used with Microsoft's HoloLens MR device. The workstation is for financial traders who monitor voluminous market data. It displays financial data as a combination of 2D and 3D holograms, enabling traders to get a read on the market environment at a single glance without having to cycle through multiple screens, thereby boosting their productivity.

In Japan, Gaitame.com, a retail forex broker, has developed MarketMR, a forex trading tool likewise used with HoloLens. First released in July 2017, MarketMR holographically displays forex rates, charts and economic news in a virtual space.

## Financial institutions' XR utilization strategies

Financial institutions with no visible products do not have much use for XR technologies. That said, with FinTech expected to keep advancing and growing in prevalence, some financial institutions may branch into the home or auto brokerage business, for instance, instead of just providing home or auto loans. In such cases, the above examples of how certain financial institutions are helping their customers shop for homes or autos and facilitating the entire process from purchase through loan application should be instructive.

Additionally, tools that virtually simulate a trading room, display financial data as 3D holograms and, in some cases, can even place trade orders would provide prop traders and customers with a novel trading experience. With XR technology available for free, it is worth a try for financial institutions.

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