

HOW FINANCIAL SERVICES INDUSTRY CAN LEVERAGE METAVERSE

Abstract

Globally, the number of users leveraging augmented reality (AR) and virtual reality (VR), metaverse's foundation technologies, has been rising substantially. Resultantly, metaverse has been gaining significant traction across industries. In the financial services industry, metaverse offers significant opportunities for financial institutions (FIs) to differentiate themselves and attract new tech-savvy customers with novel products and services. This paper shares insights on some of the key emerging metaverse use cases that FIs can consider adopting, as per their specific business needs.



Overview

Metaverse is a digital reality that combines aspects of social media, online gaming, augmented reality (AR), virtual reality (VR), e-commerce, and cryptocurrencies. It allows users to interact virtually in a collaborative and immersive fashion. Using personalized digital avatars, users can, for example explore virtual lands, where they can socialize, play games, purchase real estate, browse art, or go shopping. Decentraland, The Sandbox, Somnium Space, Axie Infinity, Wilder World, and Roblox are amongst the most popular metaverses. As per estimates, global metaverse market would reach ~USD 759 billion by the year 2026. JPMorgan predicts that metaverse will become a USD 1 trillion market opportunity in yearly revenues.2,3

Just as the real world, anyone who operates within metaverse could engage in financial transactions. Thus, metaverse presents huge opportunities for financial institutions (Fls). For example, users need to conduct financial transaction to buy avatars, non-fungible tokens (NFTs), virtual land, virtual accessories, etc. Moreover, metaverse presents sophisticated avenues for Fls to meaningfully engage with their customers in the virtual world.



Illustrative Use Cases of Metaverse for Financial Services Industry

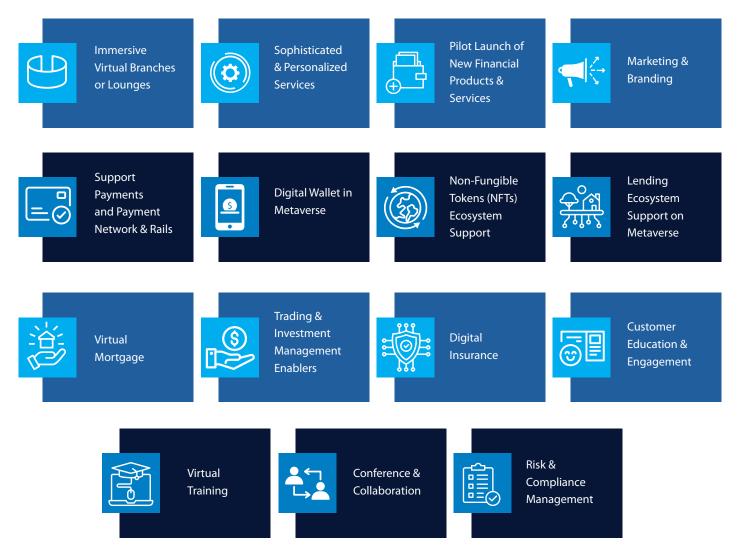


Figure 1: Illustrative Use Cases of Metaverse for the Financial Services Industry

Immersive Virtual Branches or Lounges

Leveraging metaverse would allow FIs to enable virtual interactions with customers and other stakeholders. For example, customers can move around using their avatars and speak with bank relationship manager or investment advisor via video chat, which would automatically begin when the avatar stands before the manager or advisor.

JP Morgan was the first bank to open an immersive virtual lounge. The lounge (named Onyx) is located at the Metajuku mall in Decentraland — a browser-based metaverse and amongst the world's most popular metaverse platforms. Visitors to the Onyx lounge can create their avatars by choosing a gender, skin tone, hairstyle, clothes, and accessories. The lounge features a spiral staircase, a live tiger, and an illuminated portrait of CEO Jamie Dimon. If visitors move upstairs, they can see an executive's presentation on crypto economy.^{4,5}

As another example, KB Kookmin Bank, a Korean bank, has established a virtual financial town, where customers can move around, by sporting a head-mounted VR device. The town has a virtual business center, a financial playground for customers, and a telecommuting center for staff. The business center comprises branches, recruitment and public relation (PR) booths, social spaces, and auditoriums.^{6,7,8}

Sophisticated and Personalized Services

Through metaverse, FIs can enable sophisticated and personalized services to customer's avatar. For example, services such as:

- Fund withdrawal from virtual ATMs or branches into virtual wallet
- Visit to virtual branches for high-touch customer service
- Appointment and consultation with avatar advisor
- House tour with a mortgage broker in real-time
- Ability to discuss and purchase customized financial products
- Attend investor event or take part in bank sponsored community program
- · Seek help from virtual assistants.

Shinhan Bank, for example, plans to launch its metaverse platform that would offer virtual banking services, and commercial real estate service, and be a repository of financial knowledge. The bank has partnered with telecommunications carrier KT. The engagement comprises 23 joint projects in the fields of artificial intelligence (AI), metaverse, nonfungible tokens, big data, and robotics. For metaverse, Shinhan's payment infrastructure would be integrated inside KT's virtual space. The partners will also jointly develop customer service robots and call center systems based on voice recognition Al. Users will be allowed to earn rewards when they transact with third-party brands and partners.9, 10, 11

As another example, Woori Bank, a South Korea bank, has joined Metaverse Alliance and would launch metaverse-based future financing services and products. The bank plans to build a 'Metaverse Future Finance Platform'. It also plans to create an 'Offline Metaverse Branch'. Through the platform, the bank will use Al bankers and collaborate with the industry experts to build various services for the firm's mobile banking app 'Woori WON Banking'. Further, the 'Offline Metaverse Branch' aims to offer a new and unique customer experience by adding AR-based financial services and information to physical branches.¹²

Pilot Launch of New Financial Products and Services

Fls can leverage metaverse for testing of new product and services, such as for millennials and Gen Z, without costly prototypes. Buyers, for example, can take a 3D virtual tour and try out the various products and services, and provide feedback.

As an example, Industrial Bank of Korea (IBK) is launching Cyworld Z's metaverse — with its own virtual currency "Dotori". Further, the bank plans to establish an IBK Dotori Bank on metaverse, that will launch new financial products for the Cyworld Z users. One of these products is a bankbook for Dotori, that will reward the users as per the amount of Dotori they buy.¹³ As another example, BNP Paribas has launched an app which allows retail banking customers to utilize VR in their banking transactions, including account opening, accessing account activity and transaction records, etc.14

Following are more examples: Citi has tested holographic workstations for conducting financial trading.¹⁵ EQIFi is

bringing decentralized finance (DeFi)enabled global banking services into metaverse, through its virtual and fully interactive headquarters inside Netvrk (a metaverse developed on blockchain that enables users to monetize their creations through NFTs and virtual land). The crypto friendly bank would allow users to effortlessly interact with its DeFi products within metaverse. Users can borrow against their dormant tokens as collateral. Also, users can turn their idle assets into passive income. By depositing tokens into the platform, users can receive either a fixed or variable interest rate for the duration of deposit.16 Mastercard unveiled an augmented reality app that offers cardholders a virtual tour of three reward categories.17

Marketing and Branding

Fls can leverage digital presence and immersive experience in metaverse for targeted marketing and branding (to millennials and Gen Z, for instance), and for adopting brand integration strategies by collaborating with gaming, entertainment, and sports industries.

For example, Visa promoted video booths and team shirts using the Tokyo Olympics logo on Zepeto, an avatar app. Resultantly, it achieved unusually high response rates.¹⁸ As another example, Banco do Brasil planned to offer virtual experience related to its activities on metaverse. For instance, users can open accounts within the game, and work for the bank supplying ATMs and driving armored cars. 19 As another example, Nonghyup Insurance and NH Savings Bank plan to create their own metaverse maps on Zepeto, to explore how best to optimize customer communication and marketing.20

Support Payments and Payment Network and Rails

Fls can facilitate payments (e.g., for shopping and purchases) and support payment platforms, networks, and rails in metaverse — for digital, virtual and cryptocurrencies.

Lynx, for example, aims to reimagine global remittance through a metaverse enabled money transfer experience. The firm plans to completely integrate its existing infrastructure and financial payment with a metaverse virtual community. It intends to create virtual meeting spaces that allows a remitter to visit and communicate with their near and dear ones while facilitating the money transfer in a streamlined, economical, secure, and entertaining way. The platform would allow existing and emerging payment applications to prosper in metaverse. ^{21, 22}

Following are more examples: Sokin announced world's first metaverse full ecommerce payments platform. It will host a 3D community of brands and retailers, allowing consumers to meet, communicate, transact, invest, and purchase in one all-encompassing ecosystem and virtual economy. Payments will be made via Sokin's peer-to-peer mobile app within the metaverse.23 3 Hong Kong planned to launch new crypto payment offering on metaverse; enabling customers to pay for phone bills, products, and services online with selected cryptocurrencies. Multiple wallets can be accepted. Each crypto payment transaction is expected to complete within 15 minutes.²⁴ American Express plans to have its real-world payment card services work in the metaverse. The firm is considering offering ATM services, card payments, banking services, and fraud detection to customers in the metaverse. The firm is also setting up a virtual marketplace for NFTs and providing cryptocurrency services in metaverse.25

Digital Wallet in Metaverse

FIs can support digital wallets as tools that work as a bridge between blockchain and decentralized applications in metaverse. For example, enabling users to utilize their digital wallet to share their digital assets through receiving, storing, or transferring of tokens. Or to connect their bank accounts, cards, and payment apps within the digital wallet.

For example, to fully enjoy the Decentraland experience, users need to obtain digital wallet. This digital wallet works as a personal account, allowing the user to connect from different devices, keeping all their digital assets (such as names, collectibles, and lands) and progress safe. Decentraland uses Ethereum blockchain to record the ownership of all digital assets and tradable items.²⁶

As another example, PayPal has launched a new 'super app' and outlined its vision to become a digital wallet platform supporting metaverse. The 'super app' combines payments, savings, bill pay, crypto, shopping, and more.²⁷ As a last example, Mitsubishi UFJ Financial Group plans to release a new digital wallet, which will be capable of holding NFTs as well.²⁸

NFTs Ecosystem Support

FIs could facilitate the purchase and trading of digital assets such as NFTs and cryptocurrencies in metaverse. Further, they could process payments related to these purchases, offer custody services, and support secondary marketplace for NFTs.

As an example, Visa spent USD 150,000 to purchase a pixelated NFT artwork, named CryptoPunk 7610. However, Visa didn't itself actually take into custody the 49.5 ETH, paid

for the token, or the asset. Rather, Anchorage, a newly licensed bank, facilitated the purchase, becoming the first known U.S. bank to custody NFT. The transaction, conducted by Anchorage, was performed via an Ethereum smart contract. Post that, Anchorage stored the bought NFT in Visa's digital vault, that is accessible with Visa's private key.²⁹

Following are more examples:

EQIFi, the first DeFi protocol powered by a regulated and licensed bank, has partnered with PolkaCity to create an NFT card that users can use in metaverse. Also, this NFT card can be leveraged by users to apply for a free bank account with EQIBank, which provides "real world" value.³⁰

OpenSea is the 1st and largest marketplace for NFTs. It operates as a peer-to-peer (P2P) marketplace for crypto goods such as NFTs, gaming items, collectibles, and other virtual goods backed by blockchain. OpenSea is building tools which would allow users to trade their items freely, creators to promote new digital works, and developers to create integrated marketplaces for digital items. On OpenSea, anyone can buy or sell these items through a smart contract.³¹

Through its Metaverse Financial Platform, Lynx is creating the payment and technology layer which turns NFT gaming play to earn (P2E) earning into real money for the day-to-day expenses. Using Lynx's all-purpose cash in/cash out and digital payment wallet, P2E workers could easily cash out their NFT token earnings into fiat money or onto the Lynx prepaid card which allows purchase of groceries, bill payment, and the experiencing of true financial inclusion.³²

Lending Ecosystem Support on Metaverse

FIs can support the lending ecosystem on metaverse. For example, in enabling:

- Integrated services for onboarding payouts (using digital wallets)
- Micro loans for creators, developers, and virtual events on metaverse
- Support to lease financing of virtual spaces (for concerts, festivals, reunions, conferences, etc.) — such as in registration and payment services
- Lending against NFTs, crypto currency, virtual real estate, and other metaverse assets as collaterals

For example, YouHodler has launched metaverse-backed loans including on The Sandbox and Decentraland. Users can use the concerned metaverse tokens as collateral to avail crypto-backed loans, stake them, and also save them.33 As another example, TribeOne offers lending and investing services, and NFT loans on metaverse. Its NFT solutions connect DeFi ecosystem with NFT market, where users can get loans against their NFTs or purchase specific NFTs. The instant NFT loan dApp (powered by TribeOne) allows the users to access many types of digital assets across several metaverses. It allows users to get quick and zero collateral loans, enabling them to acquire NFTs and other digital assets within various metaverses.34

As another example, NFTfi is a peer-to-peer lending platform on metaverse where a borrower can take a loan collateralized by an NFT in exchange for another cryptocurrency. Lenders can earn desirable yields efficiently and have the possibility to get rare assets at steep discount in case of loan defaults. 35,36

As a last example, EasyFi launched MetaFi which allows loans for metaverse assets like virtual lands, plots, real estate, NFTs, and on-chain games on EasyFi. It focuses on lending to promising projects to make sure they get the resources and tools required to deliver full-fledged DeFi products. EasyFi is a worldwide layer two lending protocol built for DeFi. The EZ crypto was created to enable users to borrow or lend digital assets.³⁷



Virtual Mortgage

Fls can support virtual mortgage and related financial activities such as:

- Virtual real estate lending
- Supporting monetization of virtual land through rentals, games, events, and other revenue producing ideas
- Leveraging novel assets (e.g., digital clothes) as collateral to underwrite virtual property and land mortgages
- Supporting usage of virtual property as collateral for bank loans

As an example, TerraZero Technologies has provided one of the first ever mortgage to purchase virtual real estate within the metaverse. It has facilitated "metaverse mortgages" for a client buying virtual property in the Ethereum-based metaverse platform Decentraland. In future, prospective clients can use the TerraZero website to explore metaverse land listings, and then finalize the brokerage process with the company. TerraZero holds the virtual land as registered owner until loan is paid back. Each transaction is collateralized with the underlying virtual real estate, which is represented as an NFT. TerraZero evaluates the borrowers' business plans for generating money using virtual land. It does not base its loan decisions on speculations of the increasing land prices.38,39,40

As another example, Upland (a metaverse platform mapped to real world) allows people to own virtual property. Virtual property owners can buy and sell property at a profit and increase their net worth in upland cryptocurrency (UPX). Land in the Upland metaverse is scarce as there is only a limited amount of it. The more popular a city becomes the more coveted pieces of land in that city get and the higher profit players can make from flipping their properties.⁴¹

Trading and Investment Management Enablers

FIs can, for example, support trading in metaverse, and enable VR tools for traders, investors, and wealth managers.

For example, ZenGold, which is built on metaverse blockchain, allows investors to buy, sell and trade gold on the blockchain indirectly. The crypto assets on ZenGold are backed by actual physical gold, which ensures the store of value of each token.⁴² As another example, Citi has explored a program that uses holographic workstations for conducting financial trading. It has utilized Microsoft HoloLens to offer its traders holographic workstations, which incorporate 2D and 3D features to help comprehend financial information within the physical environment.43

As a final example, Comarch utilized virtual reality in its wealth management solution to offer users better access to trading tools and algorithms. The mobile app prototype merged investment advisory and financial planning into a single tool. Further, Comarch had planned to construct and manage financial portfolios in a reactive 3D environment; for example, to determine the investment risk appetite. The 3D environment can let users interact with their financial advisor in an immersive fashion.⁴⁴

Digital Insurance

Metaverse create new types of transactions and novel modes of ownership. As a result, there is a need for transparent insurance products and services (such as on smart contracts). Fls can therefore support the offering of DeFi-enabled digital insurance, to

help users prevent and recover from digital losses on metaverse — related to crypto currency, NFTs, virtual real estate, etc. Also, metaverse presents FIs opportunity to offer insurance products and services using an immersive environment. Further, it allows insurers to explore and test new insurance strategies.

For example, IMA Financial Group launched metaverse's first insurance research and development facility — called IMA Web3Labs — located in Decentraland. Web3Labs enables exploring, testing, and bringing to market insurance approaches specific to metaverse. It allows to explore the risks related to digital and meta assets (including NFTs) from inside of the metaverse and insure such risks.^{45,46}

As another example, usage-based insurance broker Hubb became the first metaverse-ready insurance broker. It is able to meet clients across the world, whether at a "sunny beachfront" or "summit of Everest". It has been regularly hosting meetings in Oculus Horizon Workrooms, via the company's investment in VR devices. Through using the virtual workspace, Hubb enables clients with new, adaptable ways to work with it. Also, internally, Hubb is using metaverse to establish a hybrid working environment. 47,48

As a last example, YuLife (a tech-driven insurance company) harnesses the power of gamification to reward healthy living. Its app is built like a game and is centered on 'Yuniverse', a virtual world in which users can 'level up' through duels, quests, and challenges to access the new zones and boost their YuCoin count. Every user has an avatar and competes with colleagues and friends. This makes YuLife's product attractive to customers, especially younger users and millennials. ^{49,50}

Customer Education and Engagement

Fls can enable immersive financial education on metaverse through virtual collaborative games, investment education, face-to-face training (via avatars), etc. Refer below few real-world examples:

Banco do Brasil is offering virtual experience related to its activities to users on metaverse. Through games, users can learn to invest both in metaverse and outside of it. On beaches and outdoors in the virtual city, users can meet manager of BB DTVM, the investment fund management company of Banco do Brasil.⁵¹

Ally Financial has developed a financial learning experience game "Fintropolis" to teach financial literacy in metaverse. 'Fintropolis' is a world for Minecraft, that uses real-world scenarios to introduce and familiarize students and users to financial concepts. The game has characters that guide players through various financial aspects such understanding cash flow and budgeting, building credit and managing debt, learning about stocks and shares investing, how taxes work, and how to buy a home.⁵²

KB Bank, a South Korean bank, is utilizing its virtual branch on metaverse to teach young people on finances and to train employees. The virtual bank comprises an entrance, VIP lounge, and main hall (where customers can access personalized financial information).⁵³

GoHenry has launched 'Money Missions', a gamified, interactive tool designed to educate children aged 6-18 and promote better financial literacy. Users can play games, watch animated videos, take quizzes, and earn points and badges while learning about key financial wellbeing topics such as earning, saving, investing, responsible spending, and credit money safety.⁵⁴

Virtual Training

FIs can leverage metaverse to enable immersive VR training for employees, financial advisors, sales representatives, etc.

For example, Bank of America launched VR training on metaverse for its employees in around 4,300 financial centers in U.S. All financial center in bank's network will utilize VR headsets to practice a broad gamut of skills including deepening and strengthening relationships with clients, listening and replying with empathy, and navigating challenging conversations. The solution, amongst others, involve utilizing Al-powered conversation simulators that allow improved role-playing opportunities, and platform simulators which empower team members to learn in real-world practice environment (on software, systems, and tools they utilize in day-today jobs). Through the real-time analytics entrenched in solution, managers can also recognize skill gaps and offer personalized guidance and targeted follow up coaching to teammates to improve performance.55

As another example, Hana Bank, a South Korean bank, has set up its employee training institute, Hana Global Campus, on Zepeto, an avatar app.⁵⁶

Conference and Collaboration

FIs can leverage metaverse to enable robust virtual workplace for stakeholders' conferences, collaboration, meetings, and townhalls. They can, for example, enable virtual meetings where people show up via their avatars and engage in conversations. Colleagues can interact via their respective avatars in virtual workrooms. Further, when a team meeting is conducted, employees can move their avatar to auditorium where the meeting would be held. Further, FIs can enable virtual recruitment interviews using avatars, thereby helping ensure that there is no gender, race, or other bias in hiring decisions. Refer below few real-world examples:

Last year, Hana Bank's CEO Park Sung-ho had interacted with firm's new entry-level employees in a virtual world utilizing Zepeto. The CEO and employees took a tour of the virtually built Hana Global Campus, which is based on the bank's human resources training center in Cheongna, Incheon.⁵⁷

Indian startup NextMeet has developed an immersive VR platform for remote working,

collaboration, and distance learning. The platform features 3D avatars that let users interact with each other virtually over the metaverse; making it more interactive and engaging as compared to video calls. The startup also creates custom 3D worlds for virtual events such as conferences, trade fairs, and product launches. 58, 59

The brokerage arm of Nonghyup Financial Group had planned to launch a metaverse platform and participating in conferences using avatars.⁶⁰

Risk and Compliance Management

FIs can offer various risk and compliance management support in metaverse. For example:

- Novel underwriting and risk management approaches such as alternative credit scoring models for millennials and Gen Z
- Support lenders in evaluating the lending risks for particular virtual real estate
- Support the metaverse's digital identity services in their Know Your Customer (KYC) and Anti-Money Laundering (AML) procedures

For example, FireStarter has implemented Blockpass KYC solution for its incubated metaverse projects. FireStarter is the first Initial Metaverse Offering (IMO) launchpad on Polygon network which nurtures and launches NFT, Social Token, GameFi and DeFi projects through metaverse. Using Blockpass solution, users can create, manage, and store a data-secure digital identity which can be utilized for complete ecosystem of token purchases, services, and for accessing regulated entities.⁶¹

As another example, crypto credit scoring protocol, CreDA, partnered with FilDA to offer leveraged and low-collateral lending. The aim of CreDA protocol is to blend traditional (off-chain) and blockchain (onchain) data to generate holistic user credit score that would allow for more flexibility and access between people's virtual lives on metaverse and their 'real world' lives. 62



About the Author



Anjani Kumar
Principal Consultant, Global Risk & Regulatory Technology Practices, Infosys Financial Services Domain Consulting Group.

Anjani has over 20 years of comprehensive experience in IT, domain, and process consultancy. He manages several strategic initiatives including thought leadership publications, solution enablement support, research and competency development program, and marketing efforts from a domain perspective. He has authored large number of high-impact whitepapers and articles; including many that have been published on reputed external forums.

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For more information, contact askus@infosys.com

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