METAVERSE AS THE ENABLER OF FINANCIAL SECTOR PERFORMANCE

Miroslav Špaček

Abstract

This paper aims to propose a radically innovative approach to the enhancement of the performance of selected banking processes by means of the incorporation of Metaverse principles. Metaverse is a breakthrough concept that uses combination of virtual and real environment as a basic framework for facilitating organization processes. The objectives of this paper are to elaborate opportunity map for Metaverse adoption in banking. The second objective is a design of the structure of selected banking processes operating within Metaverse framework yielding incomparably higher performance. Paper methodology is based on content analysis of external literature sources and internal company documents and contextual interviews with seven managers and IT experts. This paper illustrates the map of opportunities for Metaverse adoption as well as the structure of two Metaverse driven bank processes.

The conclusion is that Metaverse creates comprehensive digital environments that replicate and enhance physical banking services, facilitates processes and makes them more illustrative and manageable. Metaverse is becoming one of the building blocks of banking processes and eventually enables higher process performance as compared to that of unmodified one.

Key words: Metaverse, artificial intelligence, financial sector, banking

JEL Code: O31, O32, O33

1 Introduction

1.1 Metaverse as a new digital frontier

Metaverse as an emerging concept strives to find its foothold in current economic environment. Up to present several clarifications of Metaverse have already come into light. Typically, Metaverse represents an interconnected web of ubiquitous virtual worlds partly overlapping with and enhancing the physical world. These virtual worlds enable users who are represented by avatars to connect and interact with each other, and to experience and consume user-generated content in an immersive, scalable, synchronous, and persistent environment (Weinberger, 2022). The Metaverse is characterized by its ability to create shared spaces that

are persistent, synchronous, and interactive, so users can experience a sense of presence and connection that rivals, and often enhances, real-world interactions. Within the Metaverse, the boundaries between the digital and physical blur, opening up new opportunities for creativity, collaboration, and commerce. In this chapter, we discuss the character of Metaverse, strategy, tools, and compare Metaverse with community in real-life and social media platform (Tundjungsari, 2025).

1.2 Metaverse as a potential gamechanger in the financial sector

The Metaverse is emerging as a critical enabler of financial sector performance by transforming traditional banking through immersive, decentralized, and technology-driven approaches. The Metaverse integrates virtual reality (VR), augmented reality (AR), blockchain, artificial intelligence (AI), and decentralized finance (DeFi) to create comprehensive digital environments that replicate and enhance physical banking services. In these immersive virtual branches, customers can manage accounts, consult advisors, and even access sophisticated financial products, all while reducing dependence on costly physical infrastructure.

In addition, banks leveraging the Metaverse gain significant improvements in customer engagement and personalization. The virtual environment allows financial institutions to provide hyper-personalized advice and interactive consultations through avatars, merging the traditional personal touch with futuristic digital interfaces. Enhanced data visualization and AI-powered analytics further enable banks to predict client needs and tailor services accordingly, thereby increasing customer trust and satisfaction (Koohang, et al., 2023). Eventually, the integration of blockchain technology plays a pivotal role in enhancing transaction security and transparency (Baccour et al., Seth et al, 2024).

Metaverse is set to disrupt the banking and financial industry in an effective manner, the application of virtual reality and augmented reality offers innovative experience to the customers which will create opportunities in the banking domain. In today's competitive environment, digitization is the key to possess better interaction with the customers and other stakeholders, understand their growing needs an offer innovative and creative solution for realizing the goals of the organization. (Seth, Gupta & Singh, 2022). Metaverse banking service is the transformation from online banking to a Metaverse environment that allows customers to access banking services and interact with representatives in a virtual environment. The Metaverse refers to a virtual realm that integrates physical reality with digital environments, enabling users to interact, socialize, and participate in a wide range of activities through the use of avatars and immersive technologies. Metaverse banking service is mainly adopted

voluntarily by users and for personal purposes. Nguyen, et al. (2023) developed the theory of the adoption of Metaverse technology model (UTAUMT). By means of using SEM modelling approach they identified several factors as Metaverse performance expectancy (MPE), Metaverse facilitating conditions (MFC), Metaverse effort expectancy (MEE), and Metaverse social influence (MSI) to determine Metaverse banking service adoption. In addition, Metaverse trust (MET) and Metaverse financial resources (MEF) were recognized to play meaningful role in Metaverse adoption.

1.3 The adoption of metaverse in retail and corporate banking sector

Even if retail banking is assumed to offer better opportunities for the exploitation of Metaverse platform, corporate banking is indisputably regarded as potential target for the application of Metaverse. The role of corporate banking may become more prominent with the inherent characteristics of metaverses that might be at risk for financial speculation. Corporate banking could potentially capitalize on opportunities to counteract the actions of speculators who are not focused on the primary substance of the virtual world. Additionally, it may assume the responsibility for maintaining the stability of the exchange rate. Enormous opportunity represents creating virtual bank branches that simulate physical bank in 3D environment. Banks can also explore the non-fungible token (NFT) opportunity in the Metaverse since many individuals transact in the VR world and invest in NFTs. NFTs are a vital enabler in the metaverse and banks can regard them as asset classes under wealth management. Metaverse also enable new business models where new types of digital assets and services may be created. (Ooi et al., 2023).

A comprehensive model for the adoption of the Metaverse in the banking sector integrates multiple theoretical frameworks and practical considerations, centered around consumer behavior, technology fit, trust, and facilitating conditions. There is consent among the researches that the elements of the proposed adoption model should include following items (Alhanatleh et al., 2024; Malekolkalami, 2024; Kedla, Nair & Asha, 2025; Pillai et al., 2024; Yaseen, H., 2025):

Consumer Behavioral Intention Drivers

Basically, trust plays critical role. Bank clients are affected by perceived risks, reputation, service quality, and regulatory support. In addition, they need to be convinced about performance expectancy (the belief that using the Metaverse banking services will improve financial transactions) and effort expectancy (ease of use) are crucial. Social influence may have mixed impact but can enhance adoption when aligned with subjective norms like social

adventure and brand experience. Eventually, addressing technostress or technological anxiety is important to reduce barriers.

Technology Fit and Facilitating Conditions

The Metaverse technology should suitably match the banking tasks it supports, enhancing consumer intention to adopt. Moreover, facilitating conditions such as infrastructure readiness, adequate APIs for seamless integration, and robust cybersecurity measures are necessary. The availability of AR/VR hardware and the scalability and interoperability of the Metaverse platforms influence adoption.

External and Internal Organizational Factors

Internal market orientation and employee organizational commitment support the adoption of new orientations like Metaverse banking. Collaboration with regulators to manage compliance, security, and privacy builds consumer confidence.

Value Perception and User Experience

It is expected that perceived value from Metaverse banking experiences manifested as immersive virtual branches, avatar interactions, personalized financial advice, and educational tools should increase adoption intention. Alongside, The ability to blend virtual and physical banking experiences fosters emotional connection and enhances user loyalty.

Overcoming Barriers and Challenges

Typical barriers that can slow down or even prevent from Metaverse adoption process include regulatory concerns, financial investment costs, interoperability issues, and consumer skepticism should be tackled through strategic innovation and education. That's why providing seamless and secure transactions within the Metaverse comparable to traditional banking environments is essential.

Adoption Outcomes

Successful adoption can lead to increased customer engagement, new revenue streams, operational efficiencies, and competitive differentiation in retail banking.

In summary, the adoption of the Metaverse in banking can be modelled by combining the Unified Theory of Acceptance and Use of Technology (UTAUT) framework with Trust Theoretic, Task-Technology Fit models, and behavioral reasoning perspectives. Critical success factors include trust, performance and effort expectancy, facilitating conditions, organizational support, and delivering immersive, valuable user experiences within a secure and compliant metaverse environment. Banks that strategically address these facets will be poised to leverage the metaverse as a transformative platform for effective banking services.

1.4 The examples of the best practices in Metaverse adoption in banking sector

BNP Paribas Case Study

BNP Paribas (France) together with partners NVIDIA and Magic Leap, has developed virtual applications for banking and account opening. BNP Paribas Real Estate Bank subsidiary BNP Paribas Real Estate Bank is leveraging Metaverse's virtual capabilities and digital twins for its real estate portfolio business. The W.I.R.E.D. (Wearable Immersive Real Estate Dataroom) project has delivered a digital twin that is being used as an analytics and forecasting tool for the real estate industry. It uses data to reproduce past developments and predict future changes in cities, providing a virtual immersion into the heart of the city. The solution includes the ability to view neighbourhoods across Europe with data on millions of properties, as well as the ability to meet with other parties to electronically view properties for sale or rent. Creates a view of millions of buildings across Europe that allows real-time data to be updated regardless of its source (public data, surveys, foresight studies, connected properties, etc.) (BNP Paribas, 2022).

JP Morgan Chase Case Study

JP Morgan Chase (USA) established Onyx Virtual Lounge. It is is located in Decentraland, a virtual version of Tokyo's Harajuku district. It is the base for the upcoming virtual banking. The bank uses its Metaverse space for events, relationship management, information dissemination and client engagement. The bank wants to use the Metaverse to help solve problems such as account validation, transaction status and fraud prevention, just as it does with real clients. Similar to the real world, the bank wants to facilitate cross-border payments, foreign currency exchange, financial asset creation, trading and custody. The bank also wants to serve content creators who plan to commercialize their works within the Metaverse, whether it's lending money to fund them or creating virtual wallets to collect commissions (JP Morgan, 2022).

2 Methodology

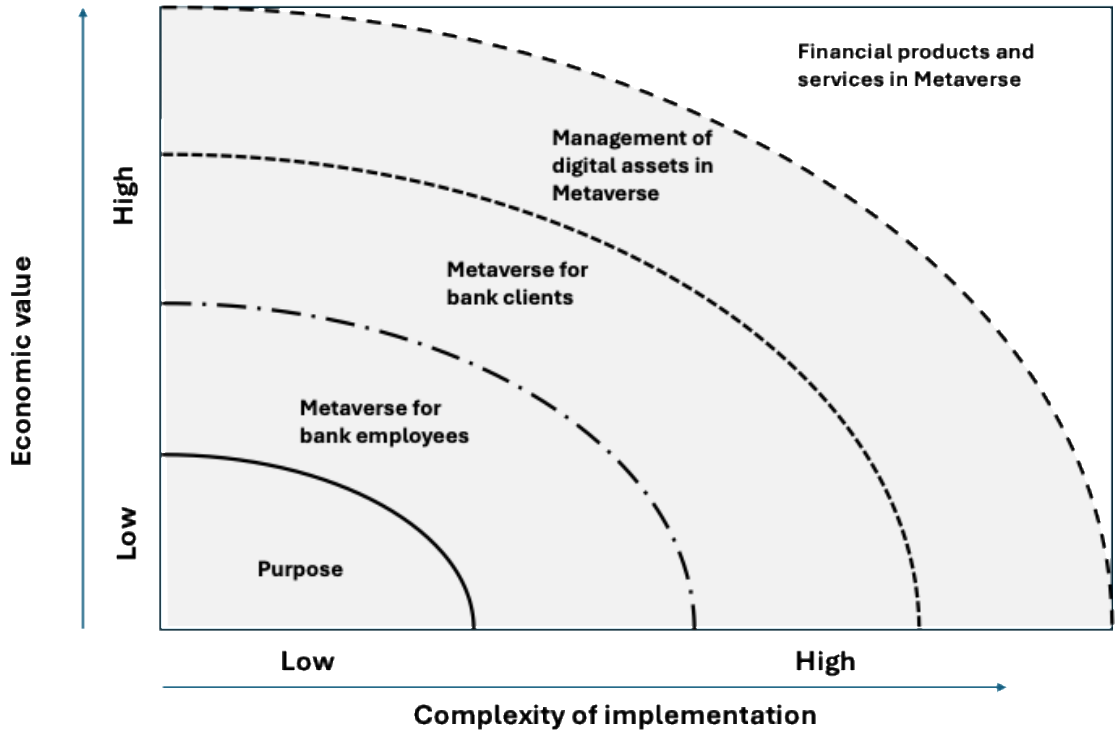
Methodology observes triangular principle which takes into consideration several research methods to increase validity and reliability of findings. At first a qualitative content analysis was applied. Scientific databases as Web of Science (WoS), Scopus and ProQuest were used for a literature search. A search terms “Metaverse” AND (financial OR banking) were applied. The search covered a time frame 2022-2024 (partially 2025). Consequently, duplicities were removed. In addition, professional reports on Metaverse issued by Accenture, Gartner, Deloitte, PwC and McKinsey were taken into consideration as supporting source of information. Finally,

50+ papers were collected. Based on their validity and proximity to paper topic 15 of them were selected to support this research stream. In addition, 7 contextual unstructured interviews with IT bank managers and 3 with IT innovation experts from Central Europe were conducted. Unstructured interviews were considered superior to other types of interviews (structured or semi-structured) because of some unclarity of Metaverse enrootment in banking sector. The precondition for respondent group selection was their affiliation to retail banking sector and receptiveness to the concept of Metaverse. The interviews were conducted in 2024 on site and recorded manually. The length of each interview was approx. 60 minutes. The open coding was applied aiming at "Metaverse use" or "Metaverse application" as codes. The second level of codes referred to categories of bank products. Having consolidated conclusions from interviews into reasonable context, Business Process Model and Notation (BPMN) method was used for the design and illustration of selected business processes structure of which were driven by Metaverse. As a supporting method a multiple case study research was conducted. Basically, an exploratory case study proved to be suitable research tool. The principle of the method is the qualitative analysis of a specific practical example, which is either typical or quite unique in its nature, allowing to gain relevant knowledge about the phenomenon under study. The specificity of the exploratory methodology is that it seeks to explore the structure of the case and prepare the ground for further research. BNP Paribas and JP Morgan Chase case studies sufficiently showed their superiority as examples of the best practices in Metaverse adoption.

3 Results

Following up the conclusions of content analysis the map of opportunities was designed (Fig). 1).

Fig. 1 Metaverse opportunities in banking sector



Source: own elaboration

The opportunities were stratified into several layers, each of them representing one possible way of Metaverse application in banking.

The map of opportunities designed as matrix provides semi-quantitative rating of opportunities based on two parameters as economic value and complexity of implementation. As pointed out in Fig. 1 there is a wide range of opportunities, each of them providing specific benefits for bank stakeholders (table 1).

Tab. 1 The list of market opportunities in banking sector

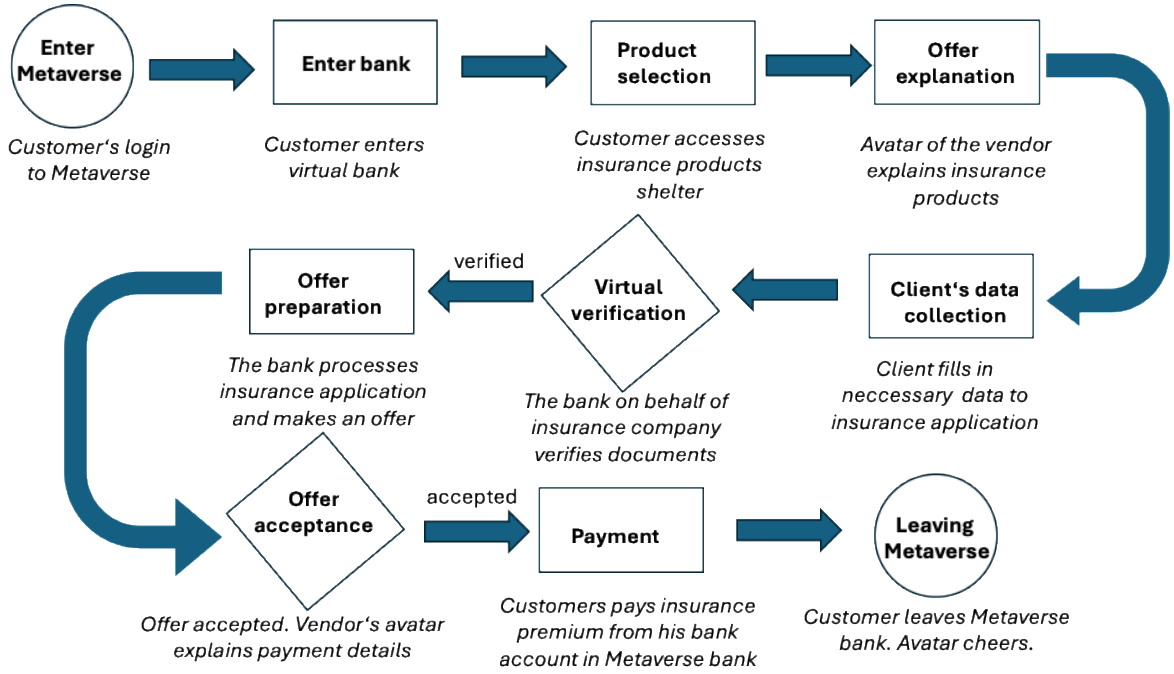
Value area	Market opportunity	Description
Metaverse for bank employees	Employee training	Providing training in a fully simulated client environment
	New generation of onboarding	Creating strong bonds between new members and existing corporate communities
	Supply chains	Digital supply chains for digital objects and extended collaboration for physical supply chains
	Bank management	Digital twin of the bank enabling new insights, control, and visibility

Value area	Market opportunity	Description
Metaverse for bank customers	Next-generation of banking	Offers the ability to check balances, pay bills, make transfers, and conduct transactions using AR/VR channels
	Virtual branches	Providing highly responsive support for banking services or sophisticated products
	Marketing and brand awareness	Virtualization of brand interactions, sponsorship, branch locations, brand building, etc.
	Support for community events	Support for real-time collaboration and analysis when presenting new products.
Digital asset management	Digital payments	Managing secure wallets and payment tools for Metaverse products, services, and economies
	Digital asset issuance	Generation of digital assets for new and existing client products
	Digital asset services	Collateral, insurance, and loans related to digital assets, NFTs, virtual real estate, and other third-party assets
	Data monetization	Utilization of data from digital assets and client data in the Metaverse
Products and services	Remote consulting	Interaction with specialists for portfolio review, financial planning, and mortgage discussions
	Loyalty rewards management	Managing loyalty rewards in connection with banking products and services
	Financing/Leasing	Digital twins used in car financing, home purchases, and commercial leasing services
	New products and services	New products ranging from art and entertainment to retail partnerships

Source: own elaboration

Contextual interviews and expert discussions with bank managers and IT innovation experts gave rise to the design of two Metaverse driven process models to be applicable in banking.

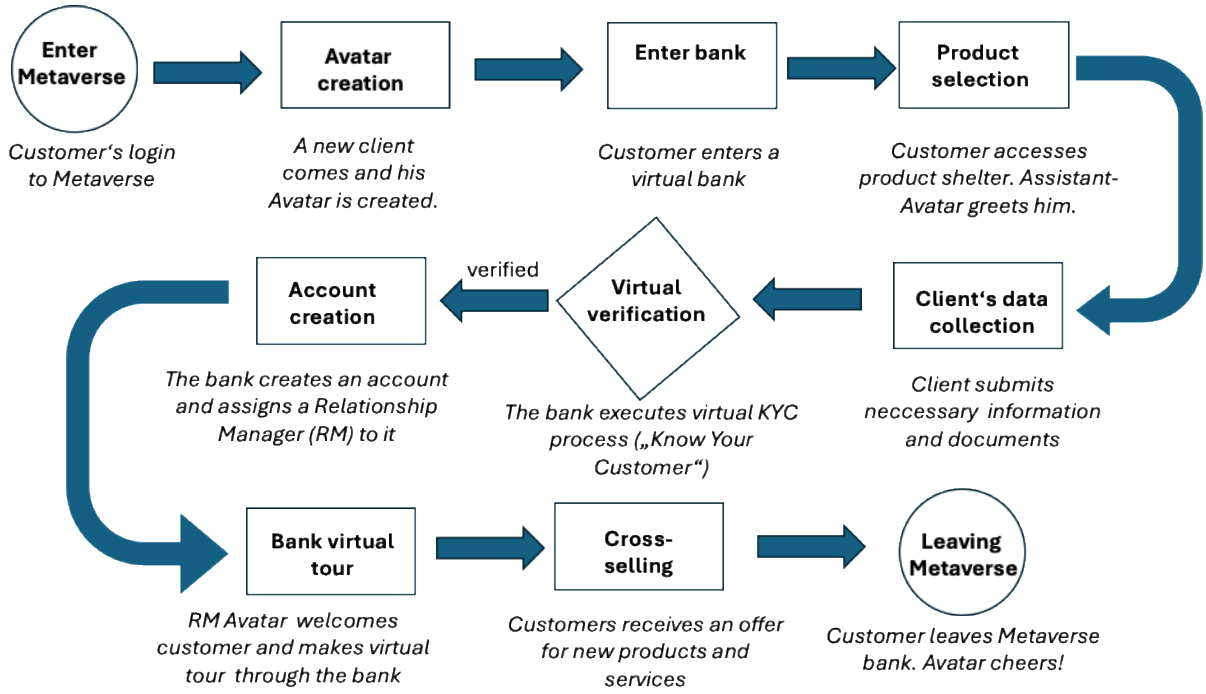
Fig. 2 The illustration of Insurance procurement process model



Source: Own elaboration

Fig. 3 illustrates bank account opening process driven by Metaverse. Avatars serve as assistants to clients to help them find the most suitable product. As for the benefits for the bank Metaverse facilitates virtual KYC process that is critical for appropriate risk management process in bank.

Fig. 3 The illustration of opening the account



Source: own elaboration

4 Discussion

Even if the research was limited to retail banking sector the conclusion showed remarkable contribution of Metaverse to existing bank processes. As pointed out in Fig 1 and Table 1 there are opportunities of making use Metaverse principles in banking. Based on interviews conducted the experts have strong confidence in benefits generated by Metaverse environment. The benefits arising from Metaverse application can be calculated not only in terms of time and cost savings but also in higher effectiveness and reliability of activities performed. It stands to reason that the incorporation of Metaverse into banking processes requires fundamental process redesign. Existing processes cannot be simply upgraded by inserting Metaverse among current ongoing activities. Entirely new process design is thus mandatory for successful accomplishment of Metaverse driven processes.

In addition, as a pilot solution several banking processes were subjected to examination. Basically, it dealt with bank account opening, credit card issuance, insurance procurement, car financing and contact-point establishment. By means of BPMN approach innovative process design for each of aforementioned processes was proposed. Two of them (insurance procurement and ban k account opening) are exemplified in this paper. Basically, the role of Metaverse in these processes was highlighted.

Conclusion

The Metaverse is a proven and unquestionable enabler of financial sector performance. Metaverse concept benefits from the interconnection of immersive technologies and financial innovations. Metaverse helps increase customer engagement, facilitates operational processes and improves existing business models by adding new revenue streams upon reinforcing security, privacy, and regulatory compliance. By this way Metaverse contributes towards more agile, inclusive, and technologically advanced banking ecosystem. As for expected benefits of Metaverse, the experts assumed that Metaverse driven processes result in higher customer satisfaction especially through more favourable cost/benefit ratio. Metaverse principles application generate benefits for both bank staff and clients. The frontiers for Metaverse application in financial sector are constantly shifting. Nevertheless, all these benefits are also associated with risks, such as regulatory compliance, ensuring data privacy and security, as well as managing the complexity of new technology. Areas like investment advisory, loans and mortgages provision or financial risk treatment are additional adepts for further research.

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Contact

Miroslav Špaček

Prague University of Business and Economics

Winston Churchill Sq. 4, 130 67 Prague 3, Czech Republic

miroslav.spacek@vse.cz