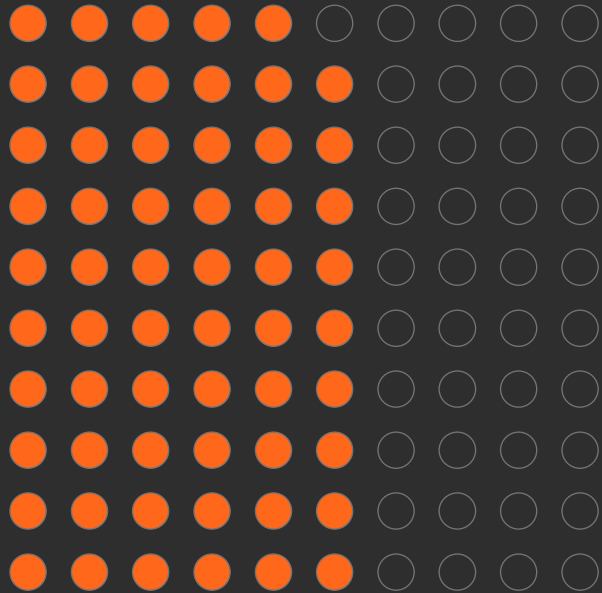# Poland
Meets Metaverse

Exploring the future of living and banking in a virtual world

59%

of market study respondents would like to enter metaverse...

Should **you**? Let's find out!

By 2026, a quarter of us could be spending at least an hour a day in the metaverse, according to the recent report by Gartner. The report also shows that shopping, studying, working and building virtual homes are some of the things that we will be doing there. The metaverse is having its moment. It provides entirely new set of dimensions to connect or engage with consumers in exciting ways. As consumers move from physical to digital and back, the metaverse will challenge marketers to find their place in the experience economy. This and the acceleration of emerging technologies from AI, AR/VR and more have created enormous opportunities for brands like ours to create even stronger, more meaningful connections with consumers. More than ever, people value both in-person and virtual experiences and the metaverse heightens those virtual experiences from a quality perspective.

Our report "Poland meets Metaverse" discusses potential applications of the Metaverse in the financial sector and other sectors such as retail and entertainment. I invite you to take a journey through this unique space together with Mastercard experts. Finding your voice in the Metaverse can be challenging, but the report gives some key insights to help you understand it better. And importantly, it shows how you can use this emerging technology successfully.

MARTA ŻYCIŃSKA
COUNTRY MANAGER POLAND
MASTERCARD
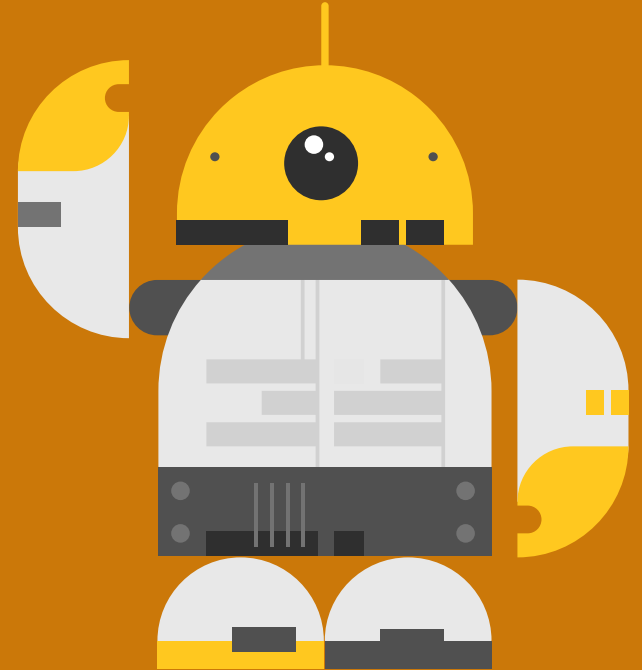
CONTENTS

Read this report if you want to know:

METAVERSE 101

- *What is metaverse?*
- *What are the popular virtual worlds and how do they differ?*
- *Are Polish customers ready for the virtual world?*

METAVERSE MOMENTUM

- *Is it worth investing in Metaverse? Who even does it?*
- *What is Metaverse good for?*

EXPLORING NON-FINANCIAL USE CASES IN THE METAVERSE

- *What are the innovative applications from various industries?*
- *How companies leverage metaverse to sell digital goods?*

EXPLORING FINANCIAL USE CASES IN THE METAVERSE

- *How are financial institutions adapting?*
- *What are the key use cases?*

METAVERSE BANKING

- *Will Metaverse fly? Overview of development scenarios*

Defining the reality of virtual worlds

Metaverse is a series of interoperable, cross-platform, and standardized ecosystems of technologies, leading to the merger of spatial communications and the internet for multiple purposes

"The metaverse can be summed up as the **Internet in three dimensions**"

NEAL STEPHENSON, WRITER, CREATOR OF TERM METAVERSE

"You can think about the metaverse as an **embodied internet where instead of just viewing content — you are in it**"

MARK ZUCKERBERG, CEO, META

"When we speak about metaverse, [...] we can talk about **unflattening of internet**"

CHRIS COX, CHIEF PRODUCT OFFICER, META

"The metaverse is best understood as the **shift of computing and interaction from a device in your pocket into a virtual simulation.**"

MATTHEW BALL, VENTURE CAPITALIST

Although the metaverse as a vision may sound futuristic its primary goal is **to better connect the real and virtual worlds** - at their intersection there is augmented reality, a technology perceived by many as the most approachable mesh of real and digital realms

NOW

FUTURE

| 2D COMMUNICATION | AUGMENTED REALITY (AR) | VIRTUAL REALITY (VR) |

Form of communication reduced to visual representation

via visual media:
- Text (e.g., e-mail, social media)
- Photos (e.g., social media)
- Voice and video (e.g., phone calls or video conferencing)

Physical experience augmented with the transparent layer of digital information

via headsets and screens:
- Smartphone screen and camera (e.g., Snapchat filters or IKEA app)
- Smart glasses (e.g., HoloLens)
- Glass surfaces and projectors or screens (e.g., car windshield)

Immersive virtual reality complemented occasionally with the objects from the real world

via virtual headsets:
- VR glasses

The way we interact with digital content will change in the future. In many use cases, 2D communication will be replaced by **phygital** – an integration of physical and digital experiences, in the form of AR, VR or Mixed Reality (real and virtual environment mix and interact with each other)

Metaverse is often accompanied by and discussed in the context of several other buzzwords – they should, however, not be mixed, especially as they can function perfectly well standalone

AR (AUGMENTED REALITY) / VR (VIRTUAL REALITY)

Technology creating a digital overlay (AR) or fully immersive digital experience (VR) to enhance or replace real experience.
VR (and sometimes AR) can be experienced through special headsets

Relation to metaverse
Although metaverse can function with traditional 2D screens, AR and VR help to realize its full potential by enabling immersion

BLOCKCHAIN

Decentralized, distributed ledger where (with the help of cryptography) ***transactions are recorded across many computers to ensure irreversibility*** *and as a result* ***safety*** *of assets and transactions*

Relation to metaverse
Blockchain technology might be implemented in the metaverse to ensure that transactions and assets are preserved and safeguarded from hacking

NFT (NON-FUNGIBLE TOKENS)

Tradeable tokens, that are based on blockchain.
They represent the ownership of unique digital assets
(e.g., digital clothes or artworks)

Relation to metaverse
If metaverse is based on Blockchain, then NFTs will act as a framework for legal agreement of ownership of assets. NFTs are tradeable. Therefore, they help to ensure the liquidity of digital goods

MARKET STUDY | AWARENESS OF METAVERSE RELATED TECHNOLOGY

Among metaverse-related buzzwords, Polish consumers are by far most familiar with VR and 35% of them already have used it. AR is the least known term, while NFT became popular among teenagers

■ I know what it is　■ I've heard about it, but I don't know the details　▢ I haven't heard about it

VR

	I know what it is	I've heard about it	I haven't heard about it
All respondents[1]	20%	38%	42%
Youth[2]	32%	47%	21%
Gamers[3]	34%	35%	31%

AR

	I know what it is	I've heard about it	I haven't heard about it
All respondents[1]	6%	10%	84%
Youth[2]	8%	17%	75%
Gamers[3]	12%	13%	75%

NFT
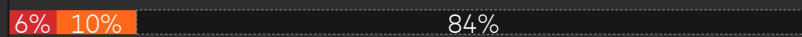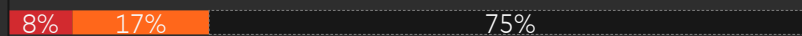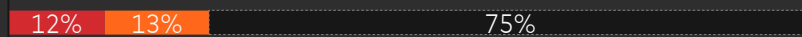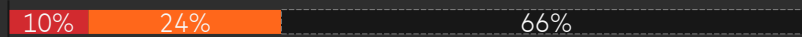
	I know what it is	I've heard about it	I haven't heard about it
All respondents[1]	10%	24%	66%
Youth[2]	15%	46%	39%
Gamers[3]	16%	31%	53%
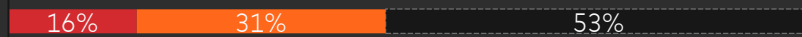
- **Majority** of each respondent group **has heard something about Virtual Reality**. Moreover, **35% of respondents have already used VR headset** (within the youth and gamers subgroup this metric nears 50%). Experience of using VR is **assessed as enjoyable by over 90% of respondents**, regardless of subgroup

- **AR** is widely used (e.g., Pokemon Go, Ikea app, selfie filters), but **few are familiar with terminology**

- **61% of youngsters have heard about NFTs** with only 34% of all respondents knowing this term

As we already know what metaverse isn't, let's focus on what it is - an ecosystem of virtual worlds where users with unique identities interact in real-time within computer-generated environments, akin to being immersed in a virtual version of 'The Sims' game

ECOSYSTEM OF VIRTUAL WORLDS

Metaverse consists of many independent but potentially interoperable **virtual worlds.** In the target state people will use **VR headsets** to navigate in the metaverse

SOCIAL AND CREATIVE ENVIRONMENT

In these worlds people can **interact** in real-time **with** other **users** or **computer-generated environment** (designed by users or brands). In metaverse, people will **actively engage** with content **instead of consuming** it

UNIQUE IDENTITY

In metaverse users have **unique identities and avatars**, which can be **customized thanks to asset ownership**. Soon (probably early 2024) avatars will fully imitate the owners and their facial expression

PERSISTENCE

A place of ongoing and non-stopping existence. These worlds run **24/7 – events occur regardless** of whether you being **logged in or not**

METAVERSE

1

4

2

3

Insights from a market study

Only 11% of Polish consumers know the meaning of the „metaverse" term, while one-third have heard this term before – awareness is only slightly higher amongst teenagers and gamers groups (increases to 39% and 45% respectively).

And yet a lack of theoretical knowledge is not a barier to the actual usage of virtual worlds

MARKET STUDY | AWARENESS OF METAVERSE CONCEPT

ALL RESPONDENTS

11% 24% 66%

YOUTH

9% 30% 61%

GAMERS

16% 29% 55%
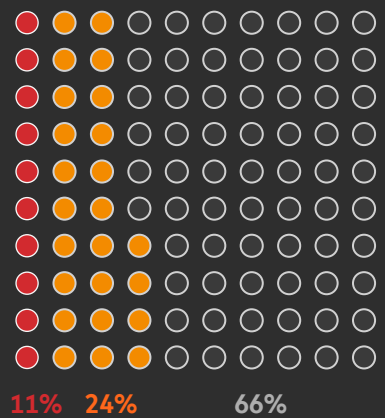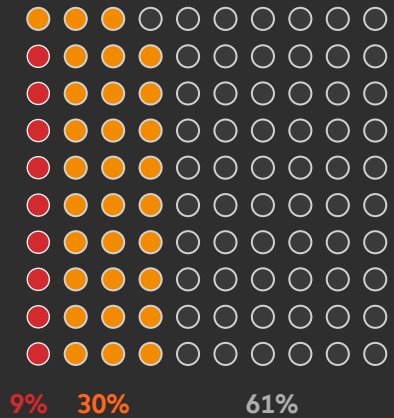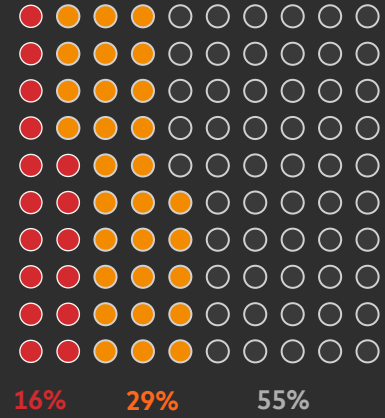
● I know what metaverse is

● I've heard about metaverse, but I do not know any details

○ I have not heard about metaverse

SOURCE: MASTERCARD BASED ON MINDS & ROSES REPORT (METAVERSE W POLSCE. TERAŹNIEJSZOŚĆ I WIZJE PRZYSZŁOŚCI, MARCH 2023, ETNOGRAPHY, FGI, CAWI N=1305)

Virtual spaces can be **standalone apps** or integrated within existing virtual worlds with the former enabling more control over the environment and the latter making it easier to reach more users. Down the road, we should see a spill of both types of metaverses

PUBLIC

Deep dive on the next slide

PRIVATE

DESCRIPTION

- **Spaces designed by individuals and brands on the land bought or rented in the virtual worlds** like Decentraland and Sandbox

- **Private spaces wholly developed by one provider** that can be accessed via a separate app or web browser

PROS

- ✓ Chance to leverage the current user base of the virtual worlds in which land is bought/rented
- ✓ Spontaneous visitors in the case of prime locations
- ✓ Price of land might increase

- ✓ Full control over the environment
- ✓ Mitigating the risk of investing in the world that won't succeed
- ✓ Attracting AR/VR users that are not present in metaverse
- ✓ Less legal or privacy risks if not based on blockchain or NFTs

CONS

- ✗ Sunk costs (generating the space and acquiring land) if the chosen metaverse won't succeed
- ✗ Legal, privacy and ownership challenges if the metaverse is based on web3
- ✗ Need to rely on the policies enforced by the platform.
- ✗ No control over the environment generated by other tenants

- ✗ Harder to attract users to download the app than to just visit a space in metaverse
- ✗ If public virtual worlds succeed, then app stores and separate apps for each activity might become less popular among users
- ✗ No spontaneous visitors

Public virtual worlds are not homogeneous. Each world has its own unique value proposition for a select target group – some of them are focused on social interactions, others on gaming or user-developed content

Daily active users[1]

Monthly active users[1]

	SOCIAL GATHERINGS	GAMING	USER-DEVELOPED CONTENT
DECENTRALIZED (blockchain-based)	Gather — N/A N/A	Axie Infinity — 600 k / 1.5 M	Decentraland — 1 k / N/A ; THE SANDBOX — 1 k / 200 k
		Roblox — 40 M / 200 M	
CENTRALIZED (not blockchain-based)	Second Life — 200 k / N/A	Meta — N/A / 200 k ; Fortnite — 25 M / 70 M	Minecraft — 4.3 M / 140 M

- Currently, **there is no general purpose metaverse for everyone** – each of the existing worlds has a focus on addressing needs of their client base
- **The most popular platforms**, Fortnite, Roblox and Minecraft, are related to gaming
- Nevertheless, **some companies** (e.g., Meta) **try to create an alternate social media experience** by making it more immersive through social virtual worlds
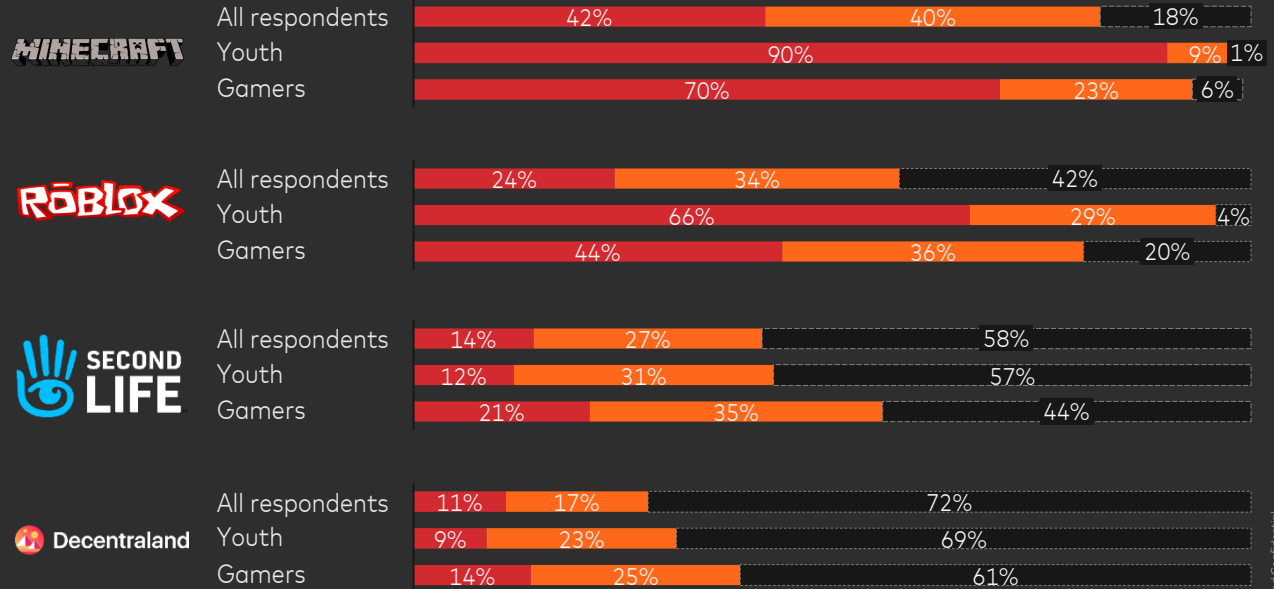
Gaming worlds are more popular than those focusing solely on social interactions. **Minecraft and Roblox are known by the majority of respondents** and almost all youngsters, **while Decentraland is even less popular than 20-year-old Second Life**

MARKET STUDY | AWARENESS OF METAVERSE WORLDS

Legend: ■ I have played   ■ I know the name, but I have never played   ▢ I haven't heard

MINECRAFT
	I have played	I know the name	I haven't heard
All respondents	42%	40%	18%
Youth	90%	9%	1%
Gamers	70%	23%	6%

ROBLOX
	I have played	I know the name	I haven't heard
All respondents	24%	34%	42%
Youth	66%	29%	4%
Gamers	44%	36%	20%

SECOND LIFE
	I have played	I know the name	I haven't heard
All respondents	14%	27%	58%
Youth	12%	31%	57%
Gamers	21%	35%	44%

Decentraland
	I have played	I know the name	I haven't heard
All respondents	11%	17%	72%
Youth	9%	23%	69%
Gamers	14%	25%	61%

- **99% of youngsters and 93% of gamers have heard about Minecraft**, **with 90% of youth either having tried or still playing this game** – it is also the most popular world among all respondents
- Second most well-known virtual world is **Roblox, 95% of youth is familiar with this game**
- **Decentraland**, decentralized and non-gaming virtual world is **not as popular as gaming-based worlds** – it is considerably **less popular even than Second Life** – non-gaming virtual world that was launched in 2003
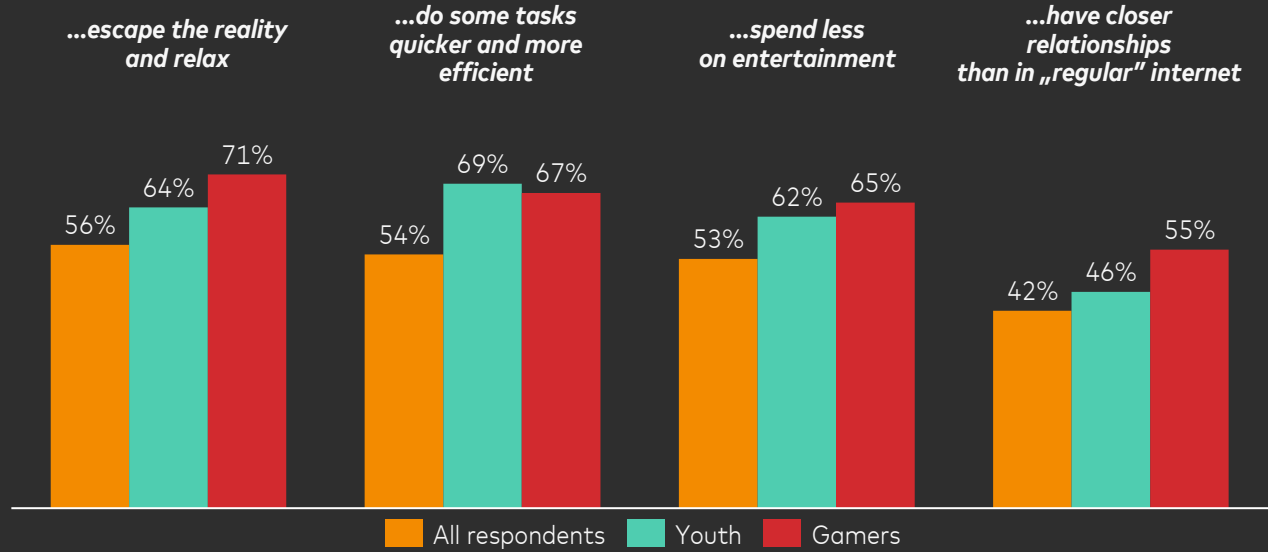
The popularity of selected virtual worlds is related to society's expectations towards the metaverse - most people look for entertainment, detachment from reality, and least of all: for interpersonal relationships

MARKET STUDY | REASONS TO USE METAVERSE

METAVERSE WOULD HELP ME TO:

...escape the reality and relax	...do some tasks quicker and more efficient	...spend less on entertainment	...have closer relationships than in „regular" internet
56% 64% 71%	54% 69% 67%	53% 62% 65%	42% 46% 55%

Legend: All respondents | Youth | Gamers

- Most people would like to access metaverse to **save time** on everyday tasks and for **entertainment**, with the additional benefit of cost saving
- **Youth view metaverse as more beneficial** than other respondents, while **gamers see more value in escapism and socializing** than other groups

Metaverse is developing despite some limitations**:**

(i) uptake from younger generations with currently limited purchasing power and interest mostly in gaming use cases

(ii) insufficient computational power, internet speeds and latency

DESCRIPTION

STUDY INSIGHTS

LIMITED SOCIAL UPTAKE

- Main interest in **joining metaverse is from younger generations who as of today have limited purchasing power** – 79% of 15-18 y.o is aware of VR
- However, **they mainly use metaverse for gaming**
- **The social platforms are vastly empty** with Decentraland attracting only 650 DAU [1]
- In densely populated areas **people lack space to use VR devices comfortably** (minimum recommended free space is 2x2m and it may vary between games)

- **Most VR users engaged in gaming with friends,** while social platforms are largely unexplored. **Those who tried Decentraland find it difficult to navigate**
- „I have tried using this metaverse [Decentraland] but it offers nothing interesting for me."

  Man 25 y.o., Dzietrzkowice

INSUFFICIENT TECHNOLOGY

- Despite its high price, **the technology is not sufficient to provide a high-quality experience**
  - VR headsets do not have enough computational power
  - Internet speeds are too slow to minimize latency and do not provide realistic imagery
  - Batteries do not allow for long-lasting VR experience

- **Respondent mentioned that it is physically inconvenient to use metaverse longer than a few hours** (for inexperienced users even longer than 10 minutes)
- „In the beginning, it was challenging to control the avatar's movement [...] causing me to experience vertigo."

  Woman 21 y..o., Warszawa

LACK OF REGULATIONS

- **There are currently no clear guidelines or regulations in place** to govern the development and operation of metaverse environments
- **Companies joining metaverse currently need to comply with all national** laws as there are no unified international laws governing the area

- **Respondents suggested that currently metaverse is regulated only by internal rules leading to situations where users are exploited or lose their possessions**
- "Verifying identities would be a very good step. The more security measures we have in place, the better."

  Man 15 y.o., Borowa

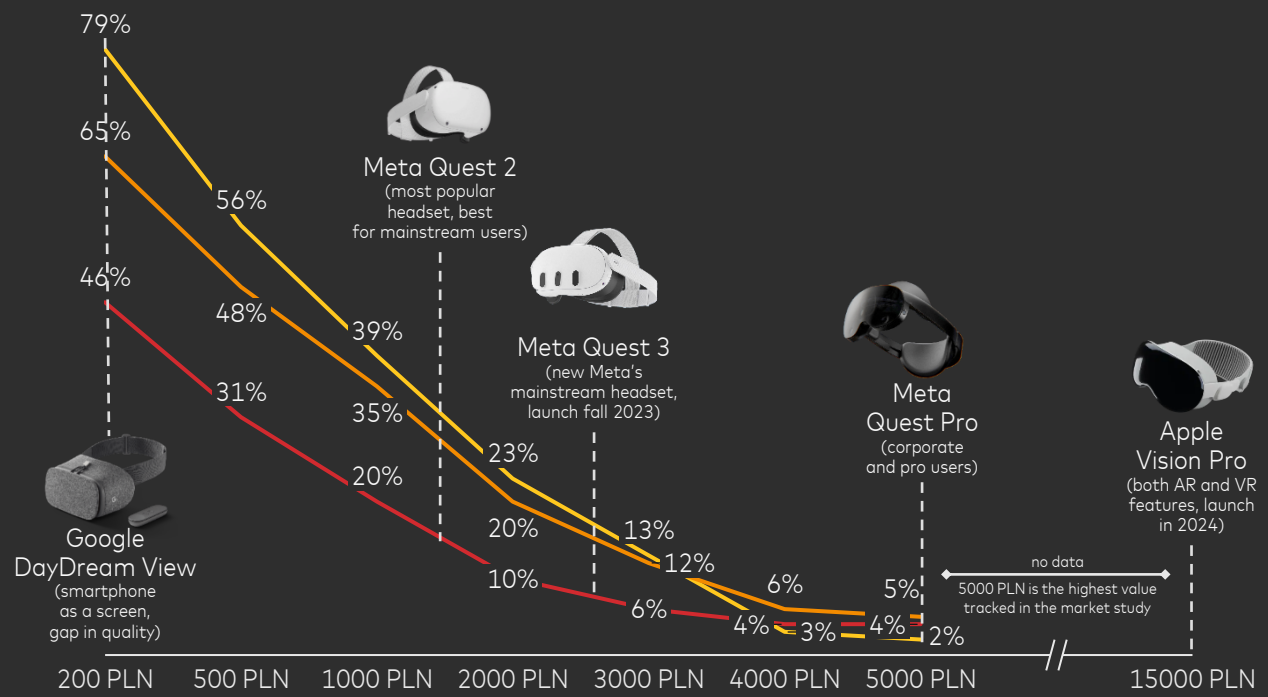# MARKET STUDY | VR HEADSET DIRECT PRICE ACCEPTANCE

Wright's Law of falling prices of technology should heavily impact the adoption of metaverse. Price of goggles might currently be a key repellent factor with around 50% of respondents indicating that they would buy VR device only if it was sold for around 200 PLN

% of respondents willing to buy at certain price points

All respondents — **Youth** — **Gamers**

Google DayDream View (smartphone as a screen, gap in quality)

Meta Quest 2 (most popular headset, best for mainstream users)

Meta Quest 3 (new Meta's mainstream headset, launch fall 2023)

Meta Quest Pro (corporate and pro users)

Apple Vision Pro (both AR and VR features, launch in 2024)

no data
5000 PLN is the highest value tracked in the market study

Youth: 79%, 65%, 56%, 39%, 23%, 13%, 6%, 5%
Gamers: 65%, 48%, 35%, 20%, 12%, 4%, 4%
All respondents: 46%, 31%, 20%, 10%, 6%, 3%, 2%

200 PLN   500 PLN   1000 PLN   2000 PLN   3000 PLN   4000 PLN   5000 PLN   15000 PLN

The development of **technologies underlying metaverse has recently accelerated greatly** – whether it is enough for metaverse to take off remains to be seen but it feels obvious that without broader, democratized access to VR goggles technology will remain niche

TECHNOLOGY	RECENT CHANGES	KPI	2018	2022	IMPLICATIONS
INTERNET	• Higher broadband and mobile speeds • Commercialization of 5G networks	• **Average broadband speed** Mbps, Poland	35	92	• Fully-fledged metaverse requires >10x higher speed, while latency remains the main constraint • **Further increase in network performance is required** but some initial work on 6G has started
HARDWARE	• Development of better VR headsets • More powerful handheld devices	• **# of VR devices sold annually** M, worldwide	6	10	• The total number of VR devices sold in 2022 is 2x lower than the number of PlayStation 5s • **The current user base is not yet capable of organically driving the growth of the metaverse**
DIGITAL ASSETS	• Growing liquidity of digital goods market • Creation of proven re-sale platform	• **NFT transactions market cap** B USD, worldwide	0.04	11.3	• NFT transaction cap is similar to the total card purchase volume in Bulgaria or Lithuania (2021) • **This may indicate that the virtual asset market is mature enough to attract companies to metaverse commerce**

• **In recent years, we have seen numerous technological changes that have accelerated metaverse development**

The potential of metaverse is already being recognized by many **players who are trying to shape it's future in their own way.** Therefore, technology is expected to mature over time and be more compelling to the broader audience

Estimated value of metaverse in 2030:

13 **trillion USD**

More than twice as much as market capitalization of TOP5 S&P 500 companies today

Meta | *Reality Labs*
- Develops VR/ AR technologies for immersive metaverse experiences
- Focuses on secure blockchain use for digital asset trade in metaverse

Microsoft | *AltSpaceVR, Microsoft Mesh*
- Develops Mixed Reality headsets (Hololens, Microsoft VR)
- Creates platforms for creating and sharing mixed reality experiences

Apple | *Mixed Reality headset*
- Announced Vision Pro headset that combines AR and VR features, it will be available for purchase in 2024
- Invested $500 M in AR start-ups to develop their competences

Nvidia | *Omniverse*
- Develops simulation engines (e.g., physics-based simulations) for enterprise purposes allowing companies to visualize and interact with simulated objects in real-time

Tencent | *Extended Reality Labs*
- Develops Extended Reality headsets to be at the front of the Chinese metaverse
- Acquired multiple (10+) gaming studios focused on developing metaverse games

METAVERSE MOMENTUM

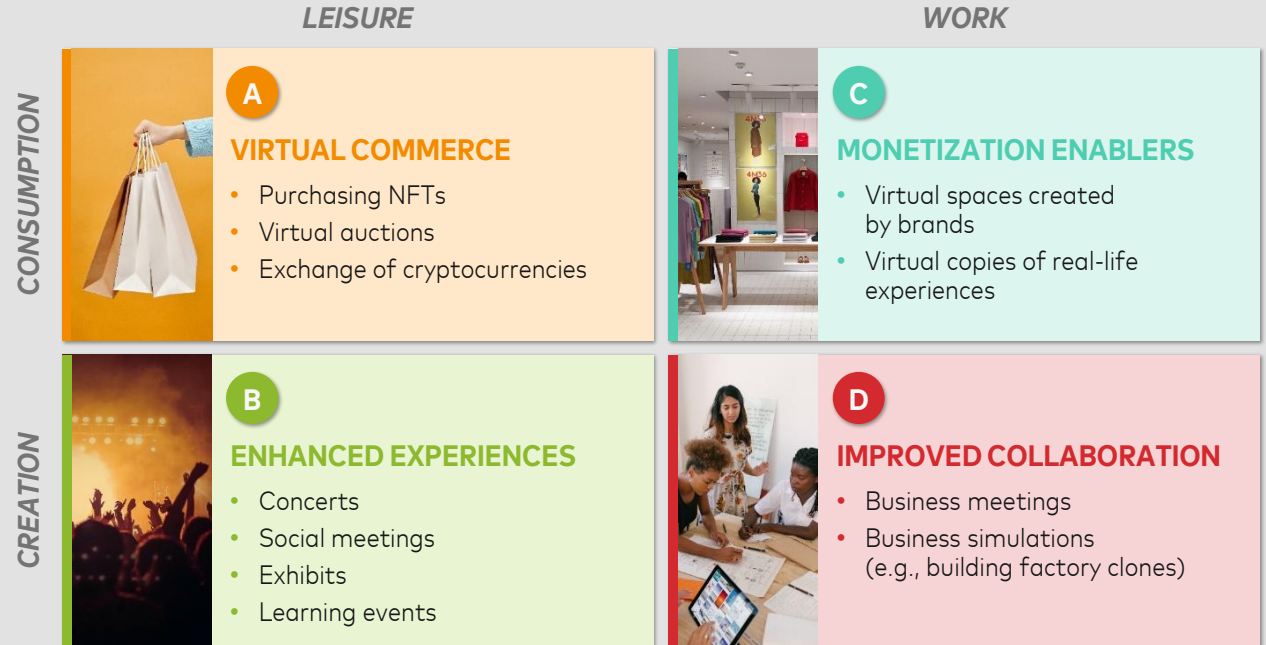# How leading companies are making their mark?

Although metaverse is a relatively new concept, many companies have already implemented several **use cases that can be grouped into four main categories based on their primary application** - they can serve consumption or creation and pertain to either leisure or work

- **Metaverse has made its way into more than 30 industries**
- Use cases implemented by industry leaders vary between organizing concerts, selling digital products and conducting business meetings
- However, if we look at their usage, **we can cluster them based on two factors**:
  - **Area of life** – work or leisure
  - **Activity purpose** – creation or consumption

LEISURE   **WORK**

CONSUMPTION

A

VIRTUAL COMMERCE
- Purchasing NFTs
- Virtual auctions
- Exchange of cryptocurrencies

C

MONETIZATION ENABLERS
- Virtual spaces created by brands
- Virtual copies of real-life experiences

CREATION

B

ENHANCED EXPERIENCES
- Concerts
- Social meetings
- Exhibits
- Learning events

D

IMPROVED COLLABORATION
- Business meetings
- Business simulations (e.g., building factory clones)

This report presents use cases from two groups of companies:

- **non-financial** (e.g., retailers) currently leading in metaverse development

- **financial** (e.g., banks) still establishing their presence in virtual worlds

METAVERSE USE CASES

NON-FINANCIAL

- **Use cases developed by companies operating in various industries** such as retail (e.g., Nike) or manufacturing (e.g., BMW)

- Currently, we observe **the majority of use case development in these industries** as their participants operate on a global scale – they are utilizing innovative virtual experiences to target even younger, tech-savvy customers

- **Use cases created in this industry are usually operationally simple** as they are stand-alone solutions that do not require any connection to existing IT landscape of a company

🔍 **Focus of slides 23-28**

FINANCIAL

- **Use cases created by companies from the financial sector** – by banks, insurance or payments companies

- As of today, **financial institutions are yet to establish a firm presence on metaverse landscape** – it is still uncommon for even the largest global banks to engage within this new form of economy

- Financial services companies are still cautious about metaverse due to the inherent risks of decentralization or cryptocurrencies and lack of regulations

- **Nevertheless, we observe a growing interest of financial institutions in metaverse**

🔍 **Focus of slides 29-33**

Innovative applications from various industries

Non-financial companies are exploring the metaverse across all use case categories, focusing on areas that complement their core product or service offering (e.g., Sotheby's created a virtual auction house in the metaverse)

A VIRTUAL COMMERCE 1 2 3

B ENHANCED EXPERIENCES 4 5 6

C MONETIZATION ENABLERS 7 8 9

D IMPROVED COLLABORATION 10 11 12

Category	#	Brand	Sector	Platform
VIRTUAL COMMERCE	1	Nike	Retail	Roblox
	2	Gucci	Luxury	Sandbox
	3	Sotheby's	Fine arts	Decentraland
ENHANCED EXPERIENCES	4	Grammy Awards	Music	Roblox
	5	Arizona State University	Higher Education	Roblox
	6	Travis Scott	Music	Fortnite
MONETIZATION ENABLERS	7	Qatar Airways	Airline	Unreal Engine
	8	Thumbay Group	Healthcare	Unreal Engine
	9	Vans	Retail	Roblox
IMPROVED COLLABORATION	10	BMW	Automotive	Nvidia Omniverse
	11	IBM	Technology	Spatial
	12	Accenture	Professional Services	Altspace VR

VIRTUAL COMMERCE

The growth of virtual commerce is mainly fueled by major retail companies - they aim to generate **revenue from the sale of digital goods** and to offer customers a **unique and engaging virtual experience**

1 NIKE
Retail

- Nike has created a **virtual space** (called Nikeland) in the metaverse inspired by its global headquarters, **where users can participate in virtual sports events and purchase Nike's NFTs for their in-game avatars**
- Within the environment, **Nike offers virtual versions of its products** - including shoes and clothing – **that can be subsequently purchased also offline**

2 GUCCI
Luxury

- **Gucci developed a virtual environment where clients perform activities** (e.g., vintage bags renovation) **to collect or purchase limited NFTs**
- **The company also hosts virtual events in the metaverse**, such as runway shows and virtual art exhibitions, **to engage with consumers in immersive and interactive ways**

3 SOTHEBY'S
Fine arts

- Sotheby's **created a virtual space in the metaverse for art exhibitions and auctions**, recreating the experience of a physical auction house
- It uses NFTs to **enable users to purchase and collect digital art in the metaverse**, which is displayed in virtual galleries

ENHANCED EXPERIENCES

Metaverse experiences are mainly developed by entertainment companies that provide fans with novel ways to experience content, interact with brands, and generate revenue from virtual events

4 GRAMMY AWARDS
Music

- **The 64th Grammy Awards were presented in Roblox**
- The experience consisted of **virtual meet and greets with singers' live performances by Camilo Cabello**, challenges to win digital merchandise, and even a red-carpet area for photos

5 ARIZONA STATE UNIVERSITY
Higher education

- The university in collaboration with Dreamscape Immersive (VR company) created a **virtual learning experience**
- **Students spend 15 minutes in VR during each 3-hour-long seminar**
- **First implementation revolves around biology** – students are transported into a wildlife sanctuary in which they must determine why certain species are dying

6 TRAVIS SCOTT
Music

- In 2020, **Travis Scott hosted a series of virtual concerts in the metaverse** attracting around 20 million international fans – this success inspired other artists (e.g., Foo Fighters) to set up their own virtual shows in the metaverse
- **The concerts had a form of immersive and interactive experiences**, allowing fans to participate in the virtual performance and interact with the environment and other fans

MONETIZATION ENABLERS

A B C D

Upmarket brands may leverage the metaverse to familiarize prospective customers with their products and services. Although virtual brand experiences do not translate directly into transactions, their long-term impact may be significant. By expanding their marketing reach, companies reinforce their competitive position, create new touchpoints with potential customers and spell opportunities for up-sell

7 QATAR AIRWAYS *Travel*

- **Qatar Airways has launched a virtual experience called Qverse**, which users can access via a dedicated mobile app or web browser
- In Qverse, **travelers can visit and try-out different cabin interior** (e.g., see differences between economy and business class) and **prepare for check-in** at the virtual copy of the Hamad airport in Qatar

8 THUMBAY GROUP *Healthcare*

- The UAE-based healthcare group has an ambitious roadmap for the metaverse – it wants to build a **virtual hospital, a medical university, and a wellness center**
- In the first phase of the project, the company **distributed VR headsets to bedridden patients allowing them to virtually visit their homeland** – potentially motivating them to recover more quickly

9 VANS *Retail*

- **Vans created a virtual experience in which worldwide clients of the brand can socialize with their friends in ways that are authentic to the brand** – e.g., through skateboarding competitions and design challenges
- Moreover, **users can purchase virtual items**, including shoes and clothing, **that can also be delivered to their homes as a real-world piece**

A **B** **C** **D**

IMPROVED COLLABORATION

Metaverse is an opportunity for various companies to improve remote collaboration between their employees – its immersive nature can enhance communication, increase productivity, and drive innovation

10 BMW

Automotive

- **BMW has created virtual clones of its factories in the metaverse, allowing engineers and designers to collaborate remotely on new production processes and technologies**
- It is estimated that this innovation will reduce the planning times, improve flexibility, and precision ultimately resulting in **30% more efficient planning processes**

11 IBM

Technology

- IBM **built enterprise-secure 3D virtual spaces** that can be accessed through either Web, AR or VR
- **In these spaces employees and customers can collaborate virtually, run design thinking sessions and showcase content**
- To these workspaces users can bring their own trusted identities and avatars

12 ACCENTURE

Professional services

- **"N-th Floor" is a virtual office space** created by Accenture in the metaverse, **designed to serve as a hub for its remote workforce**
- The space is designed to be an immersive, interactive environment where **employees and clients can collaborate, share ideas, and experiment with emerging technologies** like virtual reality (VR) and augmented reality (AR)

SOURCE: MASTERCARD ADVISORS ANALYSIS, NVIDIA, IBM, ACCENTURE

How financial institutions are adapting?

Financial institutions are more hesitant in their approach to metaverse, with a tendency to focus on **engaging with customers or enhancing teamwork rather than offering digital goods trading or custody services**

A	VIRTUAL COMMERCE	*No use cases identified*

B	ENHANCED EXPERIENCES	1 2 3

C	MONETIZATION ENABLERS	4 5 6

D	IMPROVED COLLABORATION	7 8 9
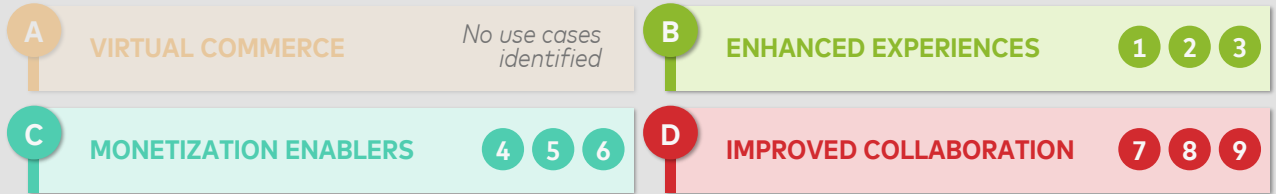
Category	#	Brand	Headquarters	Platform
VIRTUAL COMMERCE		*No use cases identified*		
ENHANCED EXPERIENCES	1	Banco do Brasil	Brazil	Roblox
	2	HSBC	United Kingdom	Sandbox
	3	ING Bank Śląski	Poland	Roblox
MONETIZATION ENABLERS	4	JP Morgan	USA	Decentraland
	5	PKO BP	Poland	Decentraland
	6	Notus Finanse	Poland	Decentraland
IMPROVED COLLABORATION	7	BNP Paribas	France	Nvidia Omniverse
	8	Deutsche Bank	Germany	Unreal Engine
	9	Citibank	USA	HoloLens

A — B — C — D

ENHANCED EXPERIENCES

Financial companies mostly focus on creating immersive experiences for their clients, with a particular interest in engaging with specific niche segments (e.g., youth) via virtual sports or education-themed activities

1 BANCO DO BRASIL

Roblox

- The bank created an **interactive experience for younger generations**
- In the game, players are able to immerse themselves in real-life experiences of bank's employees – e.g., bank tellers or ATM providers
- The in-game environment resembles the area around the existing bank's headquarters in Rio de Janeiro

2 HSBC

Sandbox

- HSBC acquired a plot in Sandbox, which it develops **to create innovative and engaging brand experiences for new and existing clients**
- The first initiative was built **for sports, e-sports and gaming enthusiasts**
- **The public was able to immerse themselves in a rugby in series of 6 enticing quests** that could be completed on HSBC-branded stadium

3 ING BANK ŚLĄSKI

Roblox

- **ING focused its virtual experience around kids** – the bank uses this channel to teach younger generations good financial habits (e.g., saving)
- In January 2023, **ING organized a concert in Roblox attracting around 56k participants**
- In February 2023, ING changed the scope of the game to cybersecurity and its importance in digital channels

LOCAL EXAMPLE

A — **B** — **C** — **D**

MONETIZATION ENABLERS

Financial institutions leverage the metaverse as a *marketing platform* to engage and inform prospective clients about their products and services, to expand *their customer base*

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4 **JP MORGAN** *Decentraland*

- **Opened an „Onyx Lounge"** in February 2022 becoming the **first bank in the metaverse**
- Within the branch **users can interact with interactive screens** showcasing banks' history and presumed role in the metaverse

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5 **PKO BP** *Decentraland*

- PKO BP **developed a copy of its unique Warsaw branch called „Rotunda"**
- In the branch **clients can explore modern art collection and view sample card designs** created by local artists in a competition run by the bank
- Clients are **guided through the branch via a gamified experience**

LOCAL EXAMPLE

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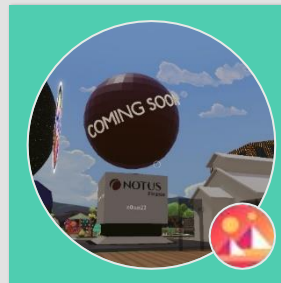
6 **NOTUS FINANSE** *Decentraland*

- **Notus Finanse created its virtual space in order to inform users about the Web 3.0 world**
- The goal of the company's presence in the metaverse is to **advertise its role as a financial specialist bridging both virtual and real worlds**
- **Company prepared videos** that inform public **about risks, opportunities and security in Web 3.0 environments**

LOCAL EXAMPLE

Banks are exploring metaverse solutions to enhance productivity and collaboration and some institutions are even testing a virtual reality for select client-facing processes. The reality resembling „Minority Report" movie seems to be reasonably far off in the future unless Apple's take on mixed reality (or „spatial computing" as they call it) will accelerate changes

7 DEUTSCHE BANK

Unreal Engine

- Deutsche Bank created an **experience for their 2050 operations specialists scattered around the world**
- **The goal was to break down organizational silos by allowing people to virtually meet and share ideas** - all within tailored Deutsche Bank world
- The whole experience was built by the bank and its partners in less than 10 weeks

8 CITIBANK

Microsoft HoloLens

- In 2016, **Citibank developed an augmented reality workstation for their traders**
- The system was **built for traders to see 3D holograms of financial data via AR devices**
- The system was designed **to be rolled out for the bank's institutional clients that could virtually interact with traders**
- The bank, however, ultimately decided not to rollout due to technological limitations

9 BNP PARIBAS

Unreal Engine

- The bank allows clients from select markets to **interact with real estate advisors to discuss potential investments** in remote parts of the world
- The technology is currently tested and will be rolled-out to select bank's private banking customers across Middle East and Asia

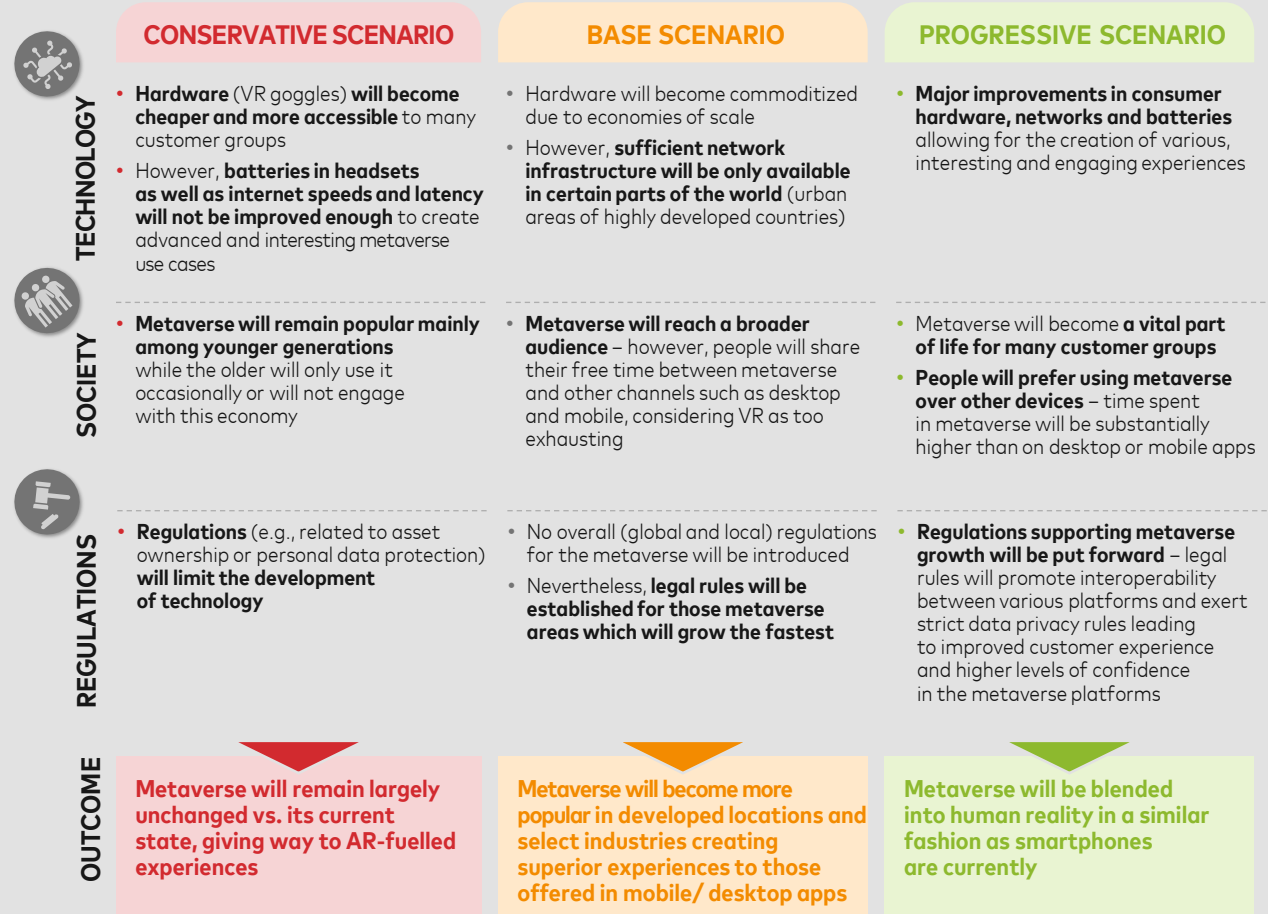**METAVERSE BANKING**

Banking Beyond Reality:

Exploring the potential of metaverse in transforming the financial industry

The future of metaverse remains **uncertain** with potential scenarios ranging from conservative to progressive, dictating its role in the financial industry – **from a mere marketing tool to an integral part of daily life**

	CONSERVATIVE SCENARIO	BASE SCENARIO	PROGRESSIVE SCENARIO
TECHNOLOGY	• **Hardware** (VR goggles) **will become cheaper and more accessible** to many customer groups • However, **batteries in headsets as well as internet speeds and latency will not be improved enough** to create advanced and interesting metaverse use cases	• Hardware will become commoditized due to economies of scale • However, **sufficient network infrastructure will be only available in certain parts of the world** (urban areas of highly developed countries)	• **Major improvements in consumer hardware, networks and batteries** allowing for the creation of various, interesting and engaging experiences
SOCIETY	• **Metaverse will remain popular mainly among younger generations** while the older will only use it occasionally or will not engage with this economy	• **Metaverse will reach a broader audience** – however, people will share their free time between metaverse and other channels such as desktop and mobile, considering VR as too exhausting	• Metaverse will become **a vital part of life for many customer groups** • **People will prefer using metaverse over other devices** – time spent in metaverse will be substantially higher than on desktop or mobile apps
REGULATIONS	• **Regulations** (e.g., related to asset ownership or personal data protection) **will limit the development of technology**	• No overall (global and local) regulations for the metaverse will be introduced • Nevertheless, **legal rules will be established for those metaverse areas which will grow the fastest**	• **Regulations supporting metaverse growth will be put forward** – legal rules will promote interoperability between various platforms and exert strict data privacy rules leading to improved customer experience and higher levels of confidence in the metaverse platforms
OUTCOME	**Metaverse will remain largely unchanged vs. its current state, giving way to AR-fuelled experiences**	**Metaverse will become more popular in developed locations and select industries creating superior experiences to those offered in mobile/ desktop apps**	**Metaverse will be blended into human reality in a similar fashion as smartphones are currently**

"**The future of metaverse remains uncertain** with potential scenarios ranging from conservative to progressive, dictating its role in the financial industry – **from a mere marketing tool to an integral part of our daily life**.

Although nowadays the conservative scenario seems to be most dominant, with largely maintained status quo for using this technology, financial institutions should pay very close attention to on-going generational changes. Gen Zs and Gen Alphas are already redefining traditional approaches to communication and interaction among each other as well as between banks and their clientele. Depending on scale and pace of on-going changes, **in a few years we may wake up in a world with metaverse blended into human reality, the same way smartphones have mingled into our daily life in the past**"

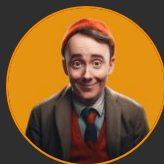## ADAM SPŁAWSKI

VICE PRESIDENT
MASTERCARD ADVISORS

Metaverse is redefining the digital landscape
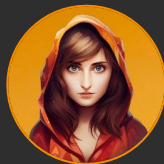
What will you do to capture it?
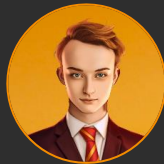
Thank you!

Adam Spławski
E-mail: adam.splawski@mastercard.com

Agnieszka Śpionek
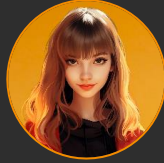E-mail: agnieszka.spionek@mastercard.com

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[advisors]

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- Co-founded **Trūata** to empower businesses to unlock the potential of their data while complying with the highest global data protection standards

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- Ecosystem of **80+ million merchants** and **22,000+ issuers**
- Actively involved **network of c-suite leaders** across industries

Unrivalled Data Assets

- Over **15 petabytes** of data
- Insights drawn from **125 billion aggregated transactions** annually across **3.1 billion global cards**
- Individual-centric, future-forward **data responsibility principles**
- Established **Binding Corporate Rules** to facilitate secure transfer of sensitive data in compliance with EU Data Protection Laws

Loyalty

- **100+ offerings** impacting **600+ million card accounts**
- **800+ custom loyalty programs** across the globe
- **1.2 trillion points** under management
- **15 billion+ API calls** serviced

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- **Mastercard Labs as a Service** recognized by Global Finance as one of the **World's Best Innovation Labs**
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DATA & SERVICES TODAY

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IN

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