WELCOME TO THE METAVERSE: ILLUSION OR REALITY?

RISKS AND PERSPECTIVES

Prof. Benedetta Podestà - Attorney- Data Protection Officer - Information security specialist - Swiss School of Management

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THE BIRTH OF METAVERSE
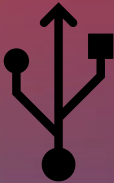## (TO GO BEYOND)

According to what Aristotle predicted 2.500 years ago in his "Metaphysics" , META is what comes after and beyond physics.

The term "metaverse" appeared in Neal Stephenson's 1992 science fiction novel, Snow Crash.

The author combines the words "meta" and "universe", fancying the existence of an immersive virtual world in parallel to the real one.

In the novel, the metaverse is a virtual reality shared via internet where people are represented through an avatar.
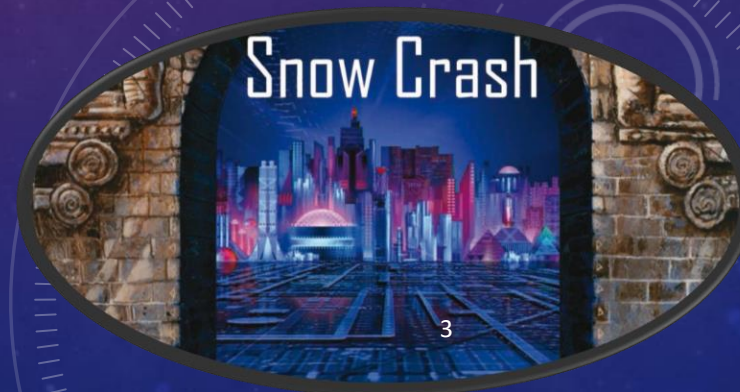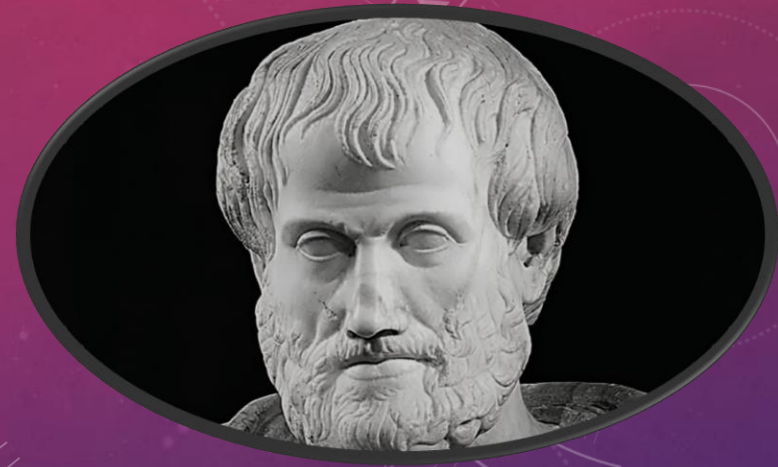
WHAT DO WE KNOW ABOUT THE METAVERSE?

Real time simulation

Scalability: efficiency in all scenarios

Multiple and varied participation

Persistent experience

Digital and physical dimension

Interoperability

Accessibility

Realism and immersiveness

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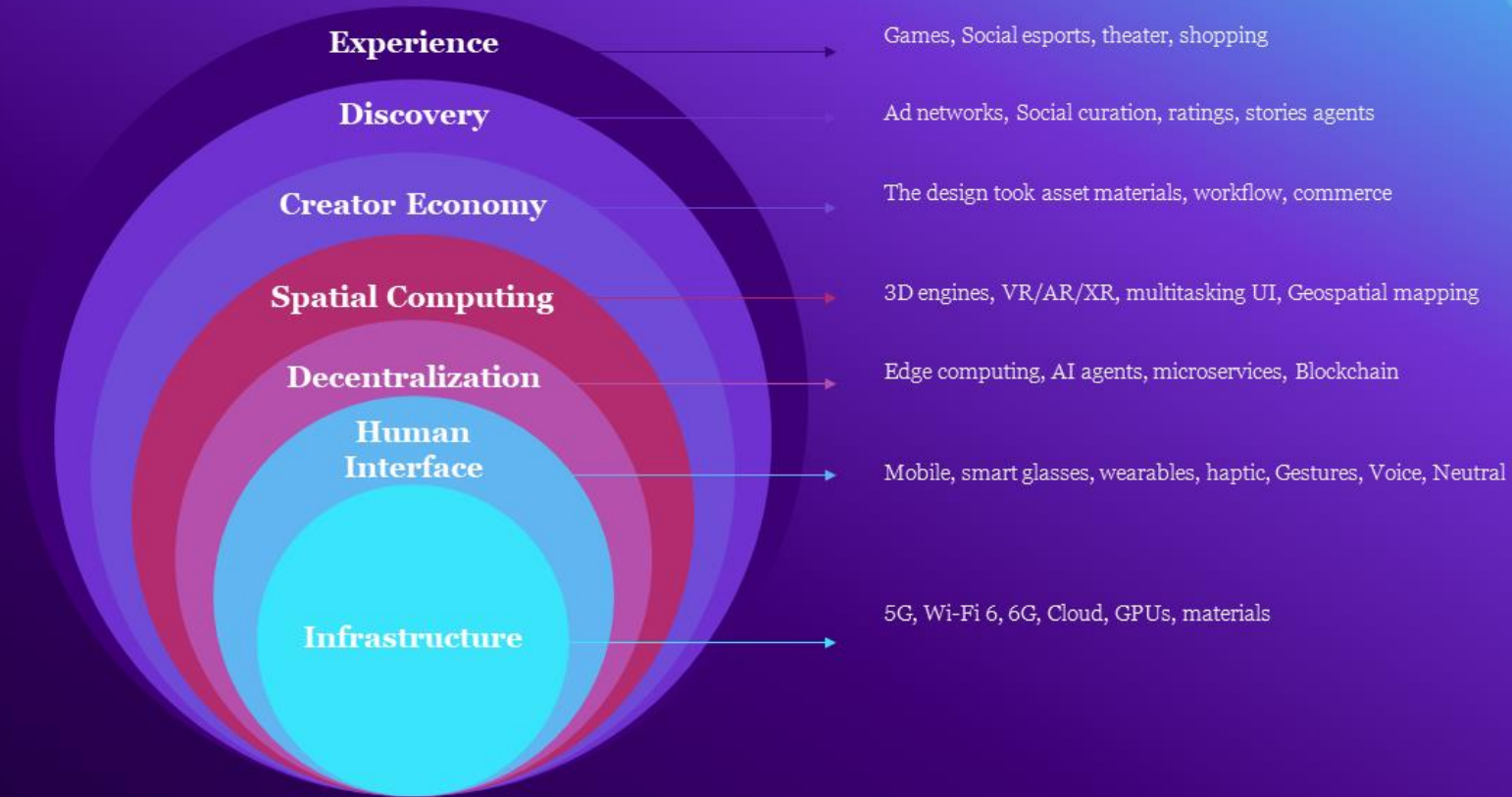
VR VS/AR: I VIDEOGAMES
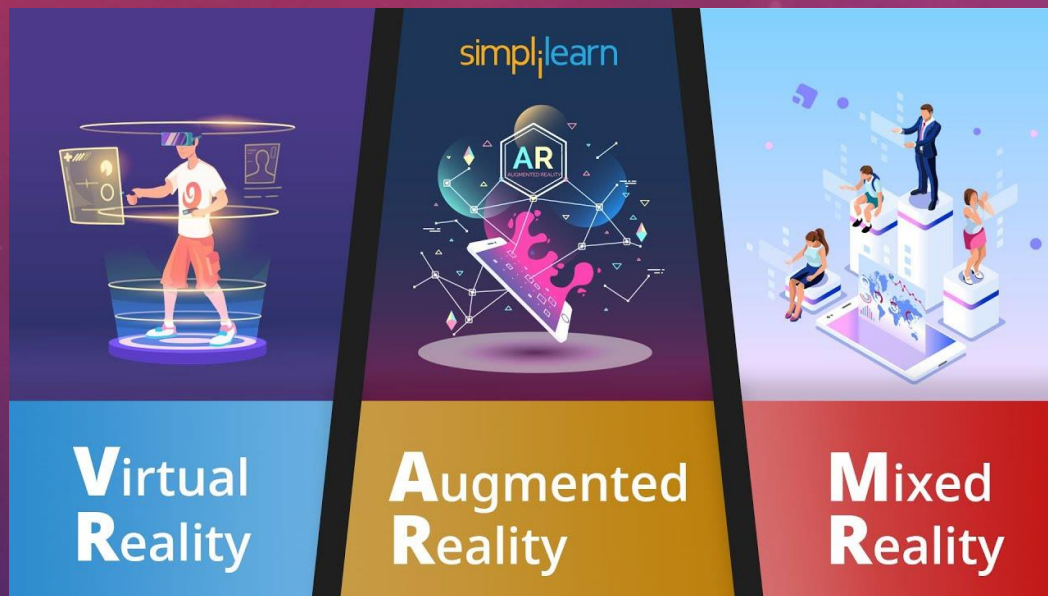
GaaP (Game-as-a-Platform),

GaaS (Game-as-a-Service)

Interactive activities

Virtual Environments

Game/non-game integrations

VIRTUAL REALITY

Users are immerse in a simulated environment.

Completely shuts down the real world, giving users the feeling of being in the virtual reality.

Users find that it is hard to perceive the difference between virtual and real world.

It is achieved by VR headsets.

Overlays computer generated 3D contents, such as images and text on the real world, without completely obscuring it.

AUGMENTED REALITY

User is able to interact with the real world and virtual world.

User can clearly distinguish between both worlds.

It is achieved by smartphones, tablets or AR wearables

WHERE IT ALL BEGINS:
THE VIDEO GAMES

WHERE IT ALL BEGINS: THE VIDEO GAMES

WHERE IT ALL BEGINS: THE VIDEO GAMES

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AI TERMINOLOGY

Smart Product (IoT)

Vocal recognition

Artificial Intelligence (VR/AR)

Blockchain

VR – Smart Headsets

NFT

OWNERSHIP OF THE DIGITAL ASSET

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AI TERMINOLOGY

AVATAR

Your own virtual representation

DIGITAL TWIN

If we want to bring an element of any kind into the virtual world, we can show it to our customers and/or visitors in detail and they will be able to interact with the object in question, also discovering additional information.

ENVIRONMENT

Custom settings. In Meta Presence®, TechStar's Metaverse platform, you can reproduce the exact copy of the office, a beach or a mountain or a totally non-existent scenario, born from our imagination

ALGORITHM

A set of finite rules or instructions to be followed in calculations or other problem-solving operations

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HOW TO ACCESS THE METAVERSE

HOW TO ACCESS THE METAVERSE

COMPUTER

If you want to expand beyond the capabilities of a smartphone, a computer with good graphics and memory will enhance your experience. You can check with the metaverse worlds you intend to use to see if they have specific PC requirements

VIRTUAL REALITY HEADSET

To enter the three-dimensional metaverse world, you'll need a virtual reality headset and hand-operated controllers. The headsets have two screens and speakers for audio.

GAMING CONSOLE

Not necessary, but beneficial in order to connect other equipment such as a microphone and virtual reality (VR) headset. If you're interested in socializing in real-time with additional equipment, a gaming console can provide an immersive experience.

AUGMENTED REALITY (AR) GLASSES

Augmented reality glasses are similar to goggles, and you can use them to enhance the virtual reality experience. The glasses present digital overlays to real-world objects.

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LET'S ENTER THE METAVERSE

- https://youtu.be/wYeFAlVC8qU

- https://youtu.be/b_o9_EvJUDU

- https://youtu.be/cW3_-HnV6VY
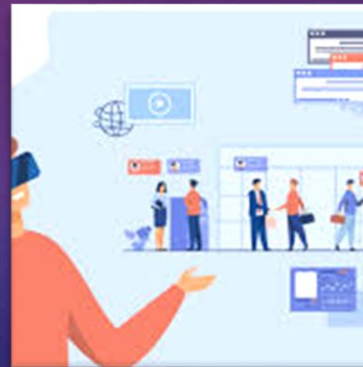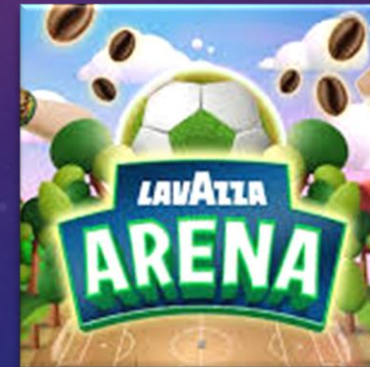
Mostre

Eventi moda

Concerti

Riunioni aziendali

Marketing

Stadio: il progetto del Manchester City

METAVERSE: ILLUSION OR REALITY?

Metaverse use cases

- Remote working
- Immersive education, upskilling
- Virtual tourism-Healthcare
- Virtual businesses and markets
- Expansion of social media platforms

cointelegraph.com

METAVERSE: ILLUSION OR REALITY?

THE AUGMENTED REALITY AND METAVERSE OBSERVATORY OF THE SCHOOL OF MANAGEMENT OF THE POLITECNICO DI MILANO

212 mapped virtual worlds

308 international projects
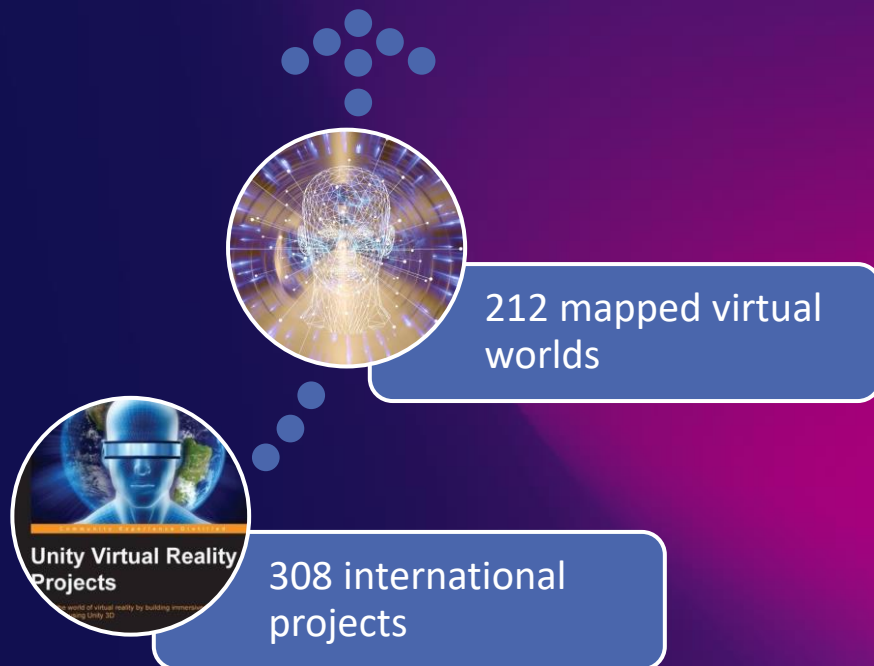
33%

"Open": persistent, modular and immersive virtual spaces, but not interoperable (e.g. Meta's Horizon Worlds).

19%

"Focused world" category, i.e. vertical virtual worlds on a specific area of interest, such as gaming, commerce, training or work collaboration (Fortnite or Microsoft Mesh).

4%

Showrooming worlds, showcases that allow the exhibition of works of art but not the creation by the user or the presence of an internal economy (Musee Dezentral).

54%

"Metaverse ready", i.e. accessible, interoperable, economically active and equipped with 3D graphics (e.g. Decentraland, The Sandbox , the Nemesis).

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METAVERSE: ILLUSION OR REALITY?

XR Projects in Italy

126 in the B2c market

Legend:
- Tourism, art
- Retail
- Automotive
- Healthcare
- Industrial Production
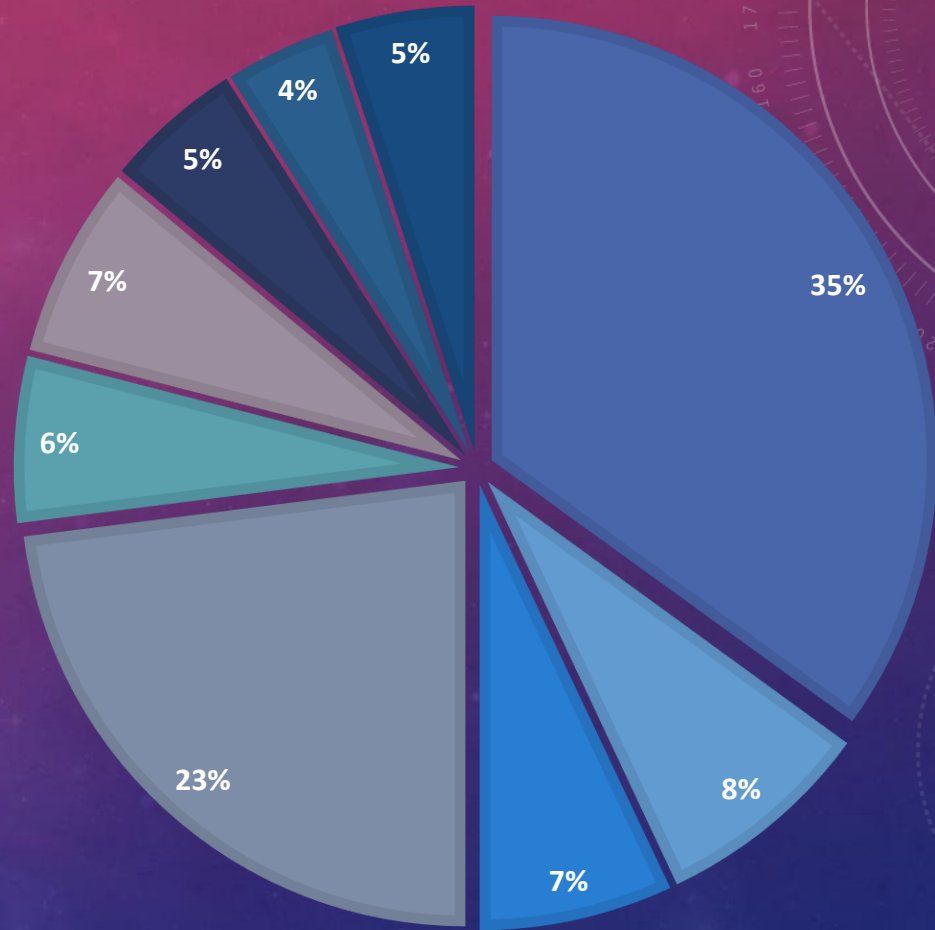- EDUCATION
- Media, Entertainment

Pie chart values: 34%, 25%, 9%, 8%, 7%, 6%, 5%, 6%
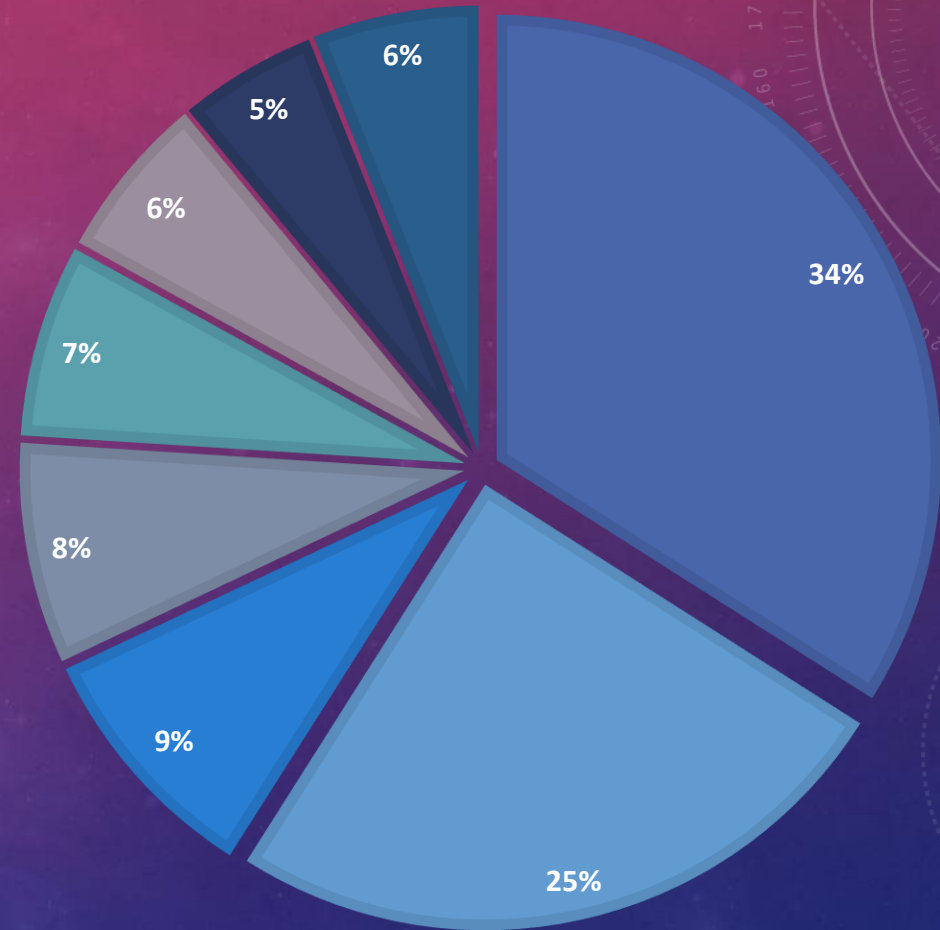
METAVERSE: ILLUSION OR REALITY?

XR Projects in Italy

105 in the b2b – b2e market

Legend:
- Industrial Production
- Utility
- PA
- Healthcare
- Retail
- EDUCATION
- Training & Consulting
- Other
- Transport

Pie chart values: 35%, 8%, 7%, 23%, 6%, 7%, 5%, 4%, 5%

METAVERSE, DATA PROTECTION AND INTELLECTUAL PROPERTY RIGHTS: LEGAL IMPLICATIONS

Internationally, 445 company projects in virtual worlds have been surveyed since 2021.

In 64% of cases, the mode of entry is direct, with the creation of a virtual space of the brand in a specific world, in 36% of cases indirect, with the launch of products that can be used in the various virtual worlds, as in the case of the launch of NFT collections.

Transactions, such as purchases and transfers of digital items, will happen with cryptocurrencies and other blockchain-based platforms.

AI supports the metaverse experiences, with algorithms directing users to other individuals, products for sale and experiences that match their preferences.
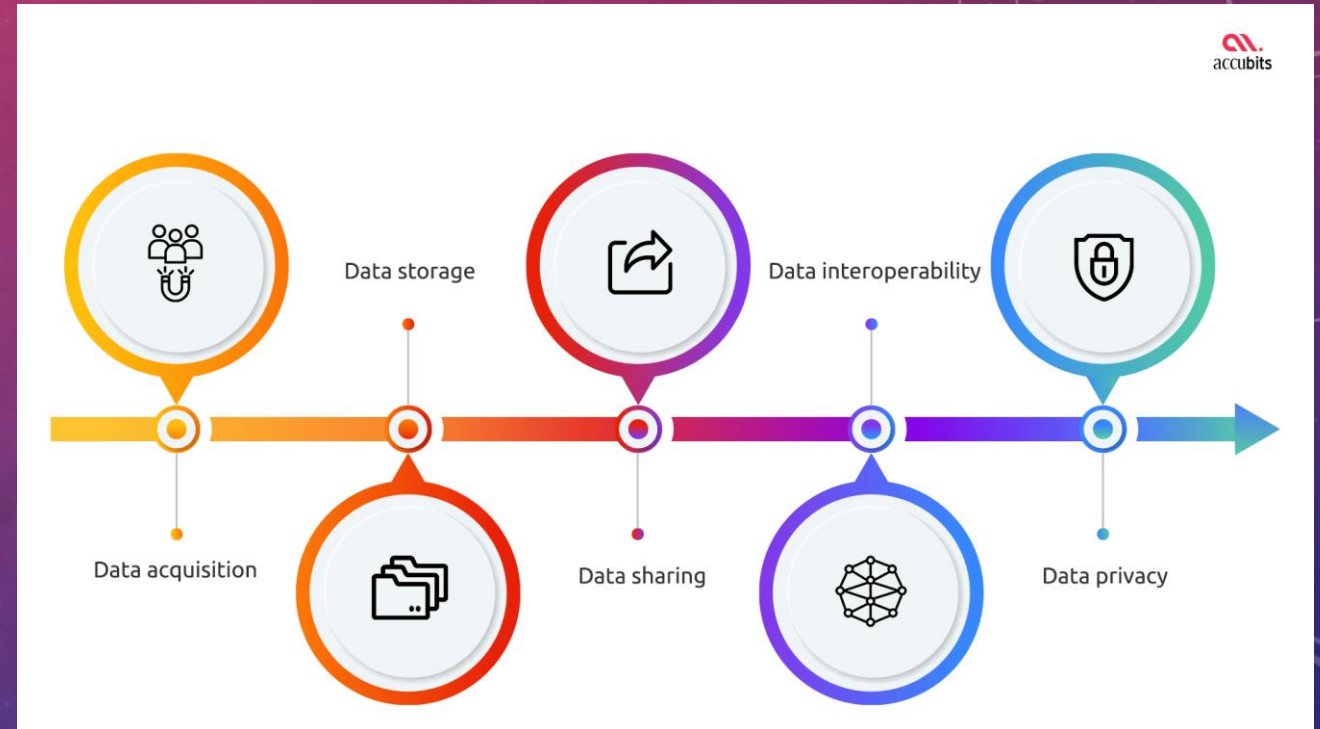
RISKS

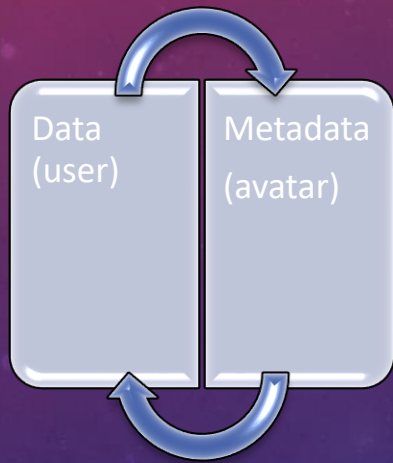**LOSS OF CONTROL OF PERSONAL DATA**

DISCRIMINATION

IDENTITY THEFT/FRAUD

FINANCIAL LOSSES

REPUTATIONAL
DAMAGE

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WHAT KIND OF PERSONAL DATA ARE COLLECTED IN THE METAVERSE?

Data (user) ⇄ Metadata (avatar)

PRIVACY CONCERNS

Transparency

Consent

Rights exercise

Sensitive data

Minimisation and pseudonimisation

INTELLECTUAL PROPERTY AND METAVERSE

- We are big fans of American rock music, but we can't afford to follow our favorite band on tour because it is limited to the USA.

- However, our idols are in step with the times and decide to hold a concert in the Metaverse with dedicated sets, precisely to allow fans to participate, wherever they are.

- The band is therefore putting on sale the "tickets" in order to join such event in the Metaverse.

- Tickets are tokens allowing fans to attend the concert and to access a VIP experience, i.e. the possibility of interacting with the band after the show and receiving at home (in the real world) a limited edition of the commemorative t-shirt of the event.

- The T-shirt is a limited production of a famous by designer and is a dedicated item.

- Tickets purchaser are granted access the experience if their avatar wears a virtual replica of the commemorative t-shirt, which is automatically placed in the avatar's "wardrobe" following payment of the ticket amount.

INTELLECTUAL PROPERTY AND METAVERSE
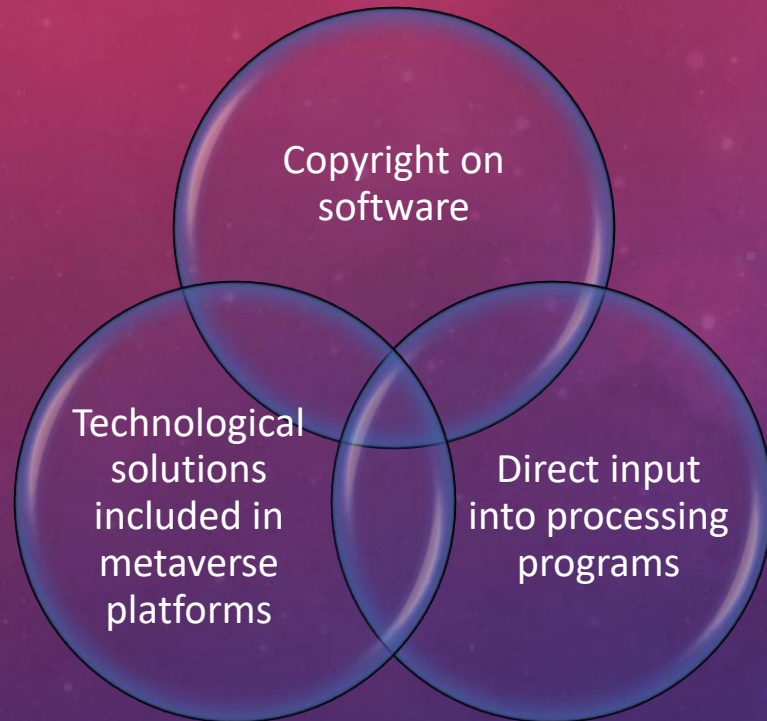
Band Name (Trademark))
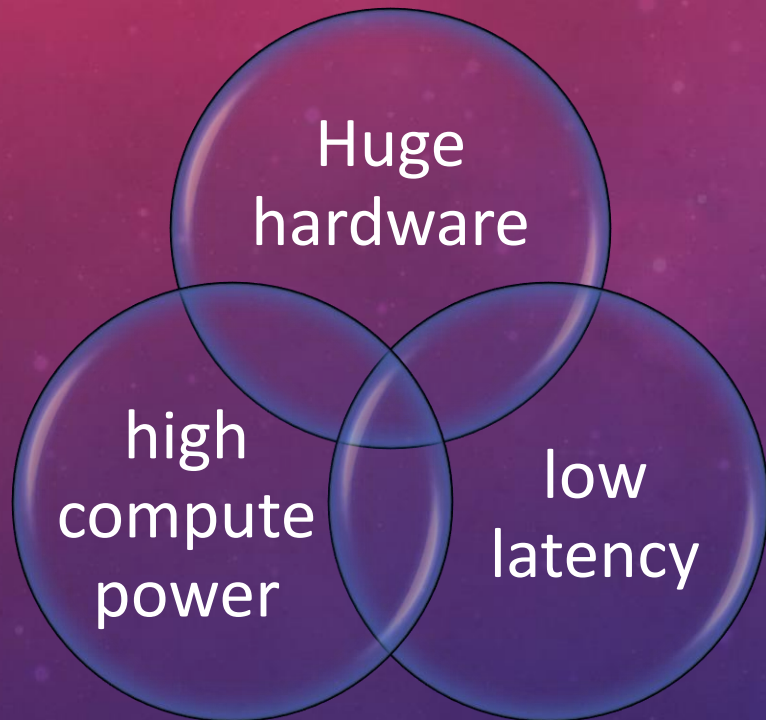
Music with lyrics (copyright)

Scenes (design)

The T-shirt (design)

Replica of the band's image (or even ours) on Avatars

PROTECTION HYPOTHESIS

Copyright on software

Technological solutions included in metaverse platforms

Direct input into processing programs

ENVIRONMENTAL ISSUES: THE RESOURCE-HUNGRY METAVERSE

Huge hardware

high compute power

low latency

- Future metaverse platforms will be more complex, likely with even higher energy needs and an attendant increase in carbon emissions.

- Getting a true picture of the metaverse's environmental impact is not possible due to the lack of a single metaverse model, the rapidity with which technologies are developing and the lack of insight into the environmental costs of those technologies.

- For example, if 30% of gamers move to cloud gaming platforms by 2030, there will be a 30% increase in carbon emissions, Lancaster University researchers estimated in a 2020 study.

PREVENTING ATTACKS WITH SECURITY INTELLIGENCE
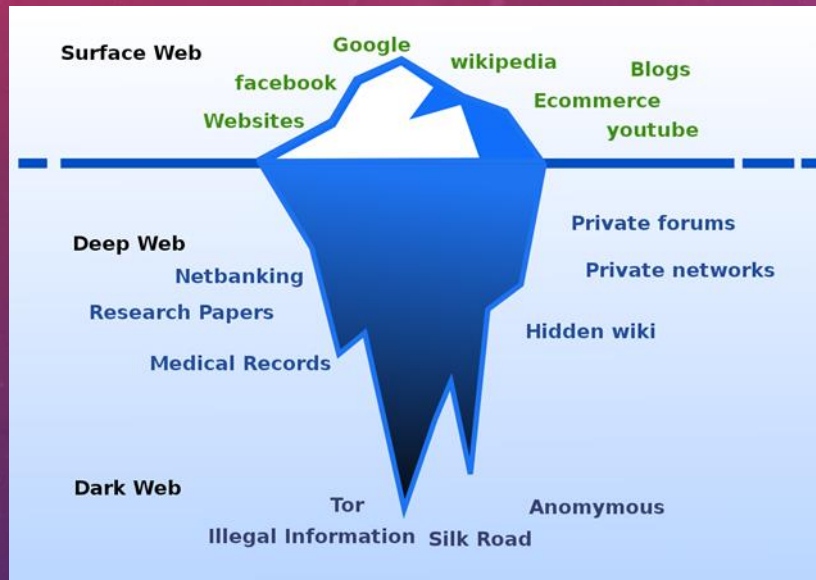
- The strategy of cyber criminals:

- No improvisation.

- Gather information to plan the attack.

- Identify any weaknesses in the subject.

- Take advantage of hacking forums and dark web markets to search for anything that can be useful to compromise corporate devices, for example by looking for any stolen credentials from services of any kind.

- In recent years, more than 15 billion credentials stolen from private and business users have been put up for sale in the depths of the Web

THE MOST COMMON "COMPUTER" CRIMES

- hacking.

- Spread of computer viruses.

- spamming.

- cyberstalking.

- cyberterrorism.

- Defamation and insult by means of computer tools.

- phishing.

- Distribution of child pornography

AI IN PROGRESS: DANGEROUS#SAFE

- More cultural education, not just digital

- More use of data from known sources

- Wiser use of open-source templates

- More decentralized computing

- More guardrails on the use of the #AI
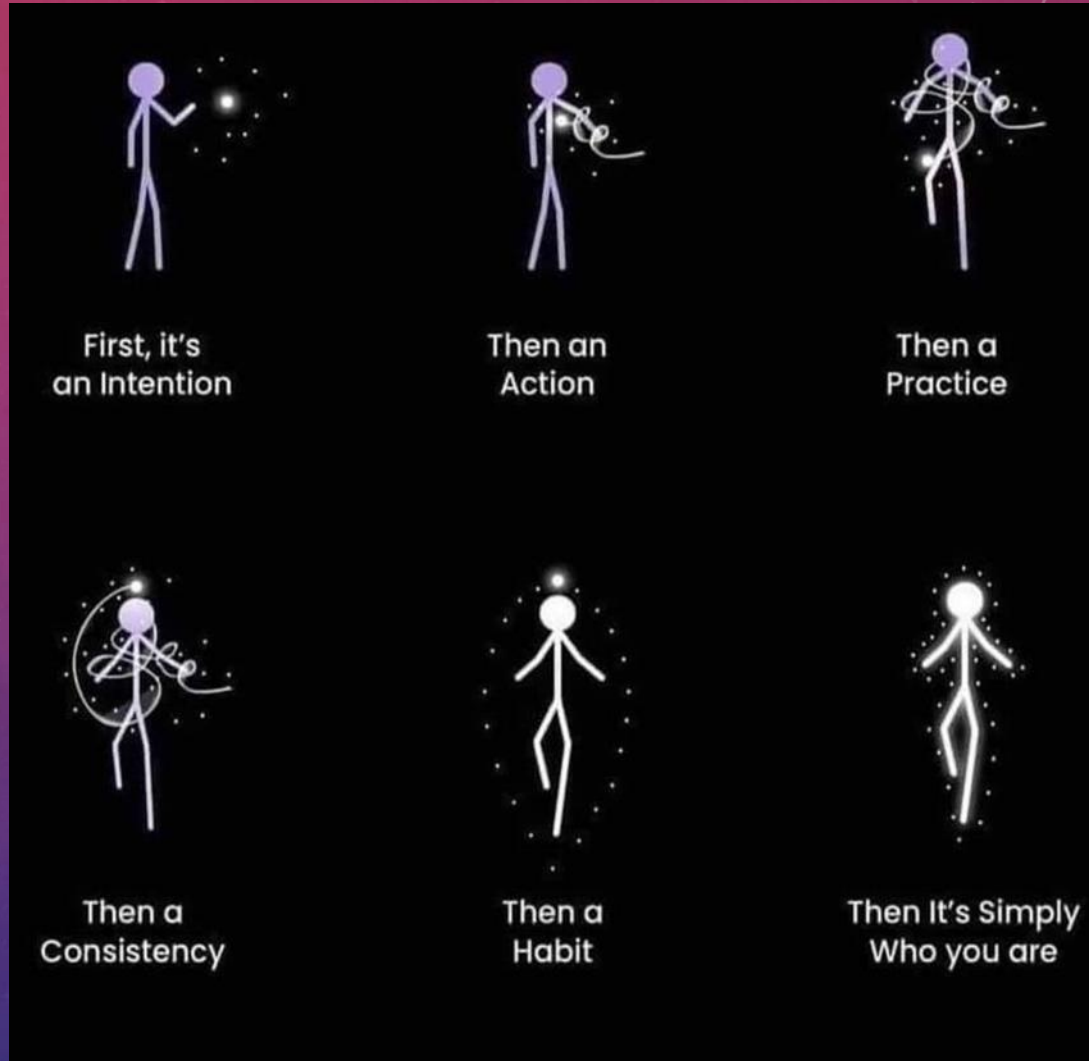
Metaverse Market Map

THANK YOU

Q&A

Benedetta Podestà

Attorney – Data Protection Officer

Senior trainer

Information Security Specialist

Lecturer of Business Law – International Law & Ethics – GDPR

SWISS SCHOOL OF MANAGEMENT ROME

BENEDETTA PODESTA' LAW FIRM

postmaster@studiolegalepodesta.com

benedetta.podesta23@gmail.com

Prof. Benedetta Podestà - Attorney- Data Protection Officer - Information security specialist - Swiss School of Management

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