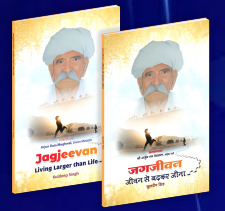
thinKuldeep

Immersive Intelligent World : The Shift We are Living Though

Presenter: Kuldeep Singh



TELECOMMUNICATION ENGINEERING CENTRE
Department of Telecommunications
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EXPERIENTIAL TECHNOLOGY INNOVATION CENTRE

Metaverse reshaping in AI glasses Era!

Highlights

- Metaverse is Dead?
- The Shift We Are Living Through
- Immersive Intelligent World
- Use cases
- Challenges
- Way Forward!


METAVERSE
Arik Bingal
META FIRES 1500 METAVERSE EMPLOYEES AFTER LOSING $73 BILLION ON THE PROJECT


R.I.P.
METAVERSE
2021-2023


METAVERSE

Chapter 2

Metaverse: Various Forms and Interpretations

Introduction

The chapter covers the diverse manifestations and interpretations of the metaverse. From its portrayal as a game, virtual world, and **eXtended Real (XR)** world to its role as a new social media platform and collaboration hub, the chapter delves into the different facets of the metaverse. It examines expert perspectives and the loosely defined nature of the concept, while also discussing the metaverse's potential as the next evolution of the internet. The chapter explores metadata and people networks, characteristics of the metaverse, immersive experiences, and their impact across various sectors. It also addresses misconceptions and trends, guiding navigating the evolving metaverse landscape.

Structure

In this chapter, we will discuss the following topics:

- Metaverse: a game
- Metaverse: a virtual world
- Metaverse: an extended real world
- Metaverse: a social collaboration platform
- Metaverse: as defined by the experts

- Defining the metaverse
- Metaverse: the next internet
- Metaverse: myths vs reality
- Navigating the evolving metaverse landscape

Objectives

The objective of the chapter is to provide readers with a comprehensive understanding of the diverse interpretations of the metaverse concept and the reasons behind its loose definition. By exploring different perspectives and examining myths and realities surrounding the metaverse, readers will gain insights into the evolving nature of this concept. Additionally, this chapter aims to establish a common definition and outline the key characteristics associated with the metaverse. Upon completing this chapter, readers will have a solid foundation for comprehending the metaverse and its implications for future discussions.

Metaverse: a game

Digital gaming has played a significant role in driving the adoption of technology. From preloaded card games to iconic titles like Super Mario on personal computers and the Snake game on Nokia mobile phones, gaming has been instrumental in shaping entertainment and technology adoption. The influence of gaming on technological advancements can be traced back to science fiction games and entertainment, making it natural to view the metaverse as a game, while the term itself originated from a science-fiction

Metaverse: a virtual world

Facebook's dominant position in the realm of social media and its signi

Metaverse: an extended real world

Niantic Labs[11], renowned for popularizing **Augmented Reality (AR)** through games like *Pokémon Go*, defines the metaverse as an enhanced version of the existing universe, referring to it as the *real world metaverse*. *Niantic's* objective is to build 3D maps and augment the entire world using its *Lightship platform*[12], which is accessible to developers and creators. *Google CEO Sundar Pichai*[13] views the metaverse as immersive computing in the realm of AR. Even *Apple's Vis*

the evolution of the metaverse e

seamless integration of digital el

an eXtended world seen using sm

Figure 2.3: *The extended real world*

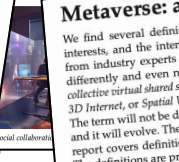
Metaverse: a social collaboration platform

Facebook, now known as *Meta*, has emerged as a company that has revolutionized social collaboration. Through strategic investments and acquisitions of platforms like *Instagram* and *WhatsApp*, *Meta* has established itself as a leader in this domain. These social platforms have transformed communication, eliminating the need for traditional telephone calls, much like how telephones replaced the need for physical meetings in many contexts. The

video conferencing / calling features on these social collaboration platforms,

Microsoft Teams, has further enhanced alliance by allowing

emselves in real-time. *Figure 2.4* below depicts



Social collaborati

Metaverse: myths vs reality

In this section, we delve into the prevalent myths and misconceptions surrounding the metaverse and contrast them with the reality of this emerging digital phenomenon. The metaverse has captured the imagination of many, but it is essential to separate fact from fiction to gain a clearer understanding of its true nature and potential. *Table 2.1* covers myths or misconception and the reality of the metaverse:

Myth / Misconception	In reality

Metaverse: the next internet

When we delve into the definition and characteristics of the metaverse, we begin to see a striking resemblance to the current state of the internet. The metaverse, like the internet, is envisioned as an open and inclusive space, welcoming individuals from all walks of life. It is a realm where people can connect, collaborate, and interact with each other, transcending physical boundaries. Just as the internet revolutionized the way we access information and communicate, the metaverse represents the next natural step in this evolution - **The Next Internet**.

Metaverse: as defined by the experts

We find several definitions of the metaverse, based on different understandings and interests, and the intentions of people and industry. *Cathy Hackl* tried to collect inputs from industry experts and published a report in *Forbes*[17], that the metaverse is defined differently and even named it differently. Some call it metaverse, while others call it *a collective virtual shared space*, *Mirrorworld*, *Omniverse*, *the Nth Floor*, *AR Cloud*, *Spatial Internet*, *3D Internet*, or *Spatial Web*. While defining the term is not easy, one thing is probably true. The term will not be defined by one single person or company, it will be defined by many, and it will evolve. The language we use to describe the future today is ever-changing. The report covers definitions and perspectives on the metaverse shared by 20 professionals. The definitions are primarily in the following categories:

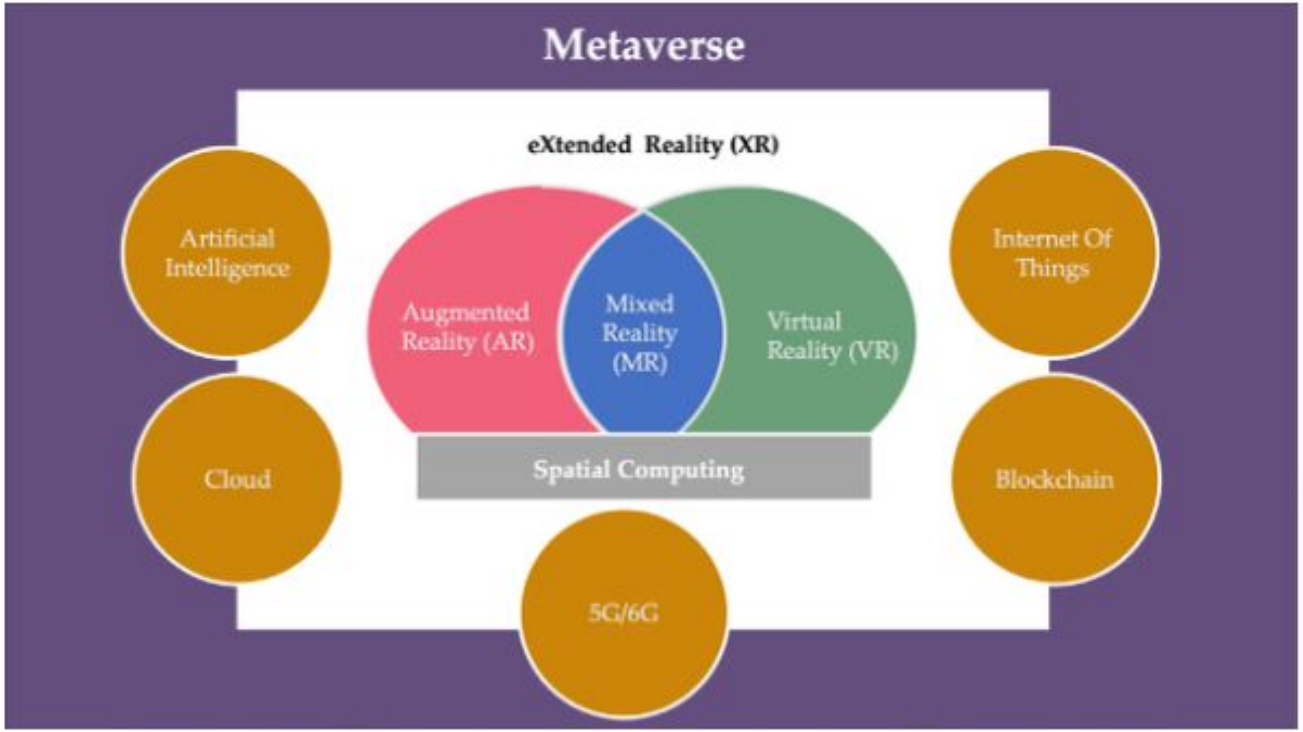


Figure Part 2: Metaverse building blocks

The Shift We Are Living Through

The Shift We Are Living Through

From Digital Experiences to Intelligent Realities

We used to step into digital worlds –

Now intelligence steps into ours –

Physical and virtual realities are converging –

The Shift We Are Living Through

From Digital Experiences to Intelligent Realities

Immersion traditionally

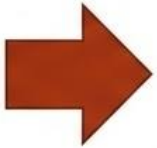
Audio visual

Screens, headsets, and visuals

Immersion was visual and device-bound

AR, VR, MR → XR

Experience, XRgonomics



Immersion moving towards

Spatial Interaction

Schematic understanding

Headless interfaces

AI glasses

XR → Intelligent XR

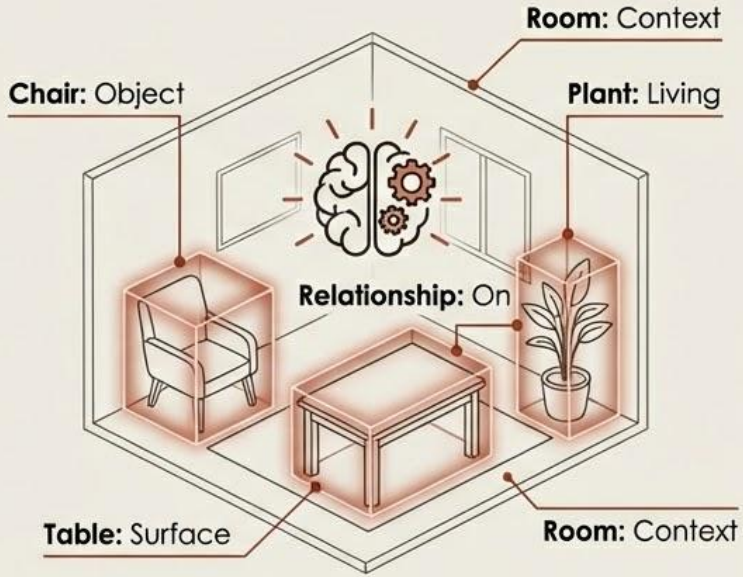
Emotion is new interface

Immersive Intelligent World!

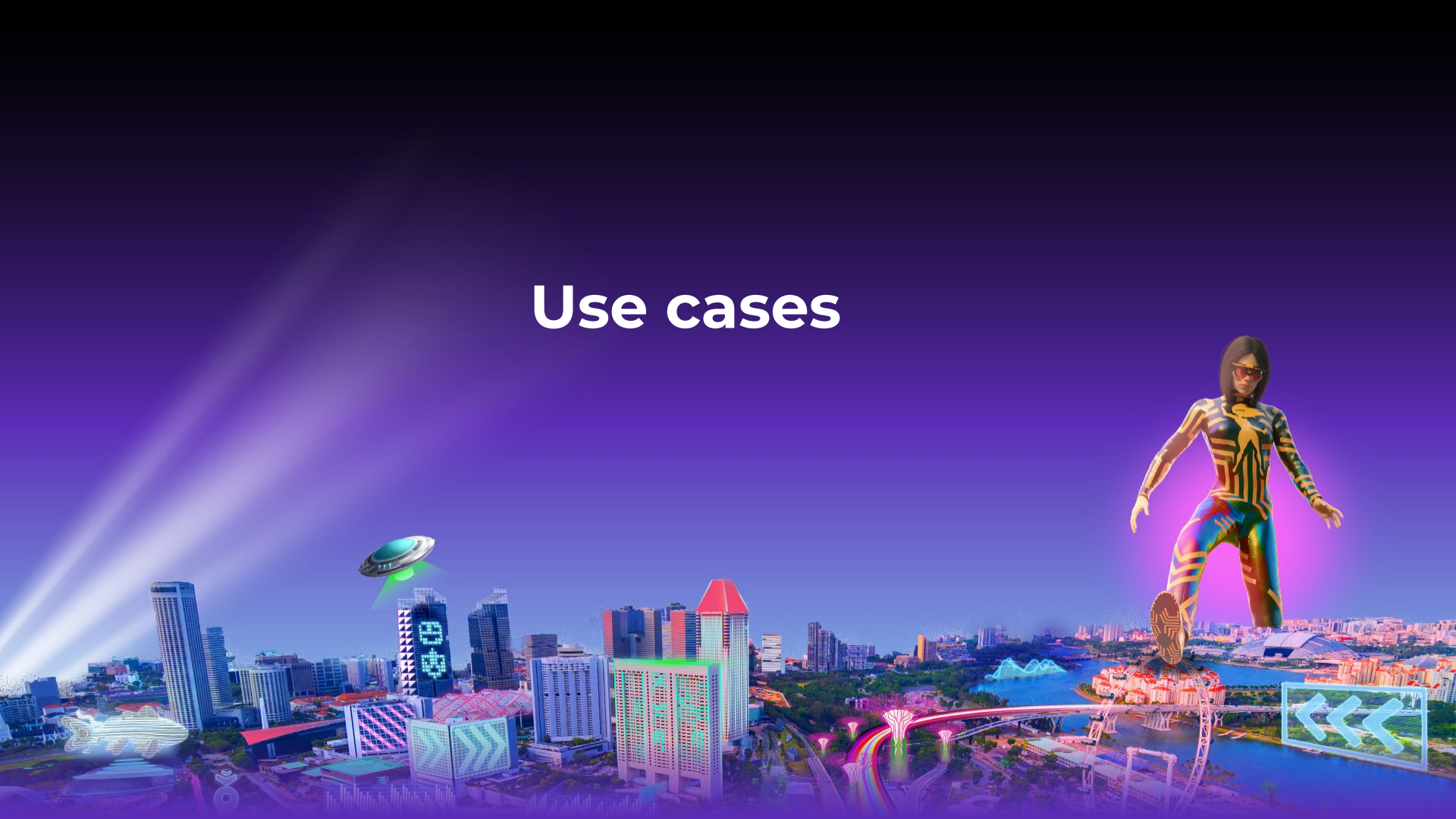
Immersive Intelligent World

Spatial Computing as the Foundation with Reality, When Reality Becomes Semantically Aware

- Spatial computing enables machines to understand space
- Objects, places, and relationships become machine-readable
- Reality becomes searchable and interactive
- AI understands environments semantically, not just geometrically
- Different parts of a scene are indexed and contextualized
- Humans and machines can reason and act within physical spaces



Use cases



Use Case 1: Spatial Retail Intelligence

IoT, Smart Tags, and Operational Efficiency

Retail stores become living digital environments

- Spatially aware IoT tags enable:
- Accurate placement tracking
- Faster maintenance and repair
- Better planogram compliance

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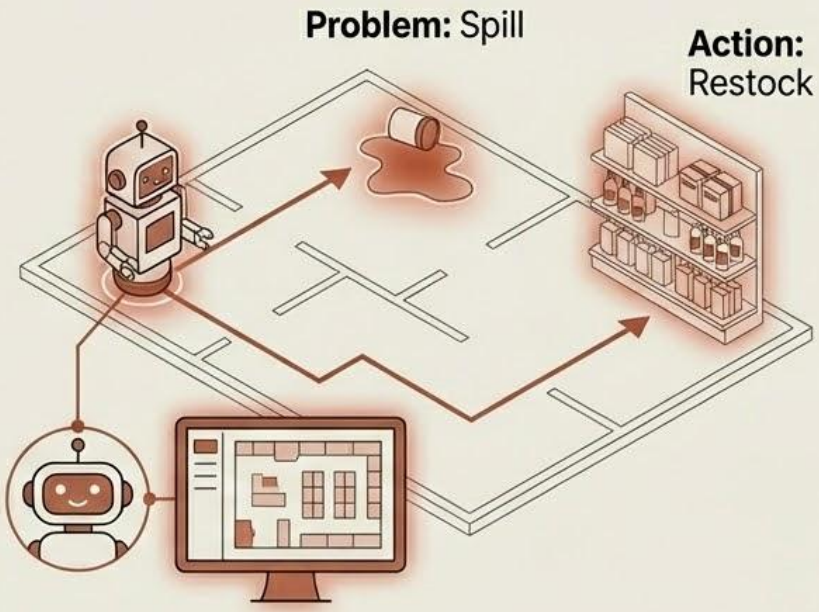
From Insights to Action

AI Agents, Robots, and Indoor Navigation

Indoor navigation improves both customer and staff experience

- AI agents and robots can:
- Locate problems
- Navigate to physical locations
- Perform or trigger actions
- Planogram

Intelligence moves from dashboards to execution



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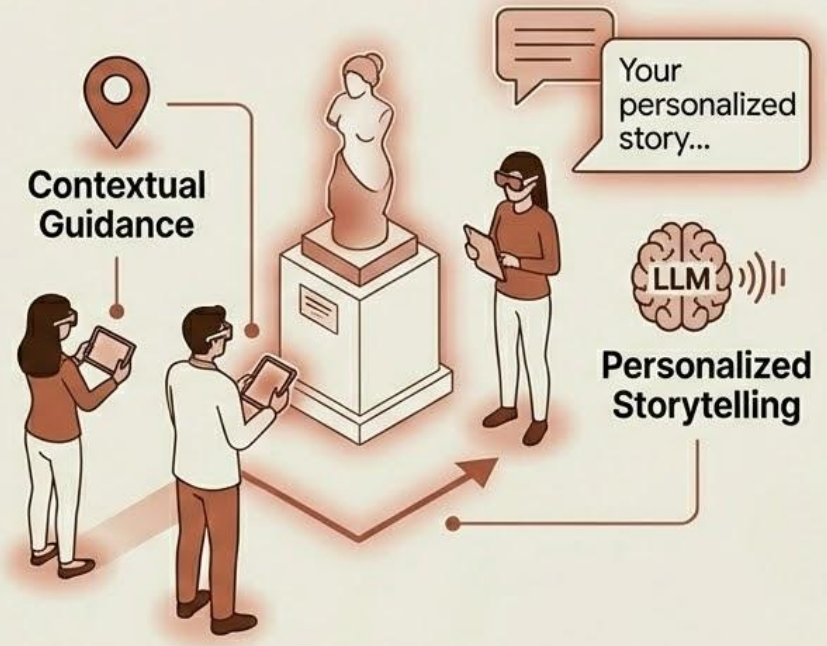
Use Case 2: Customer Engagement & Museums

Spatial AI + LLMs for Living Experiences

Cultural spaces become adaptive environments

- Visitors are guided contextually, not statically
- LLMs personalize storytelling in real time
- Experiences become emotional and memorable



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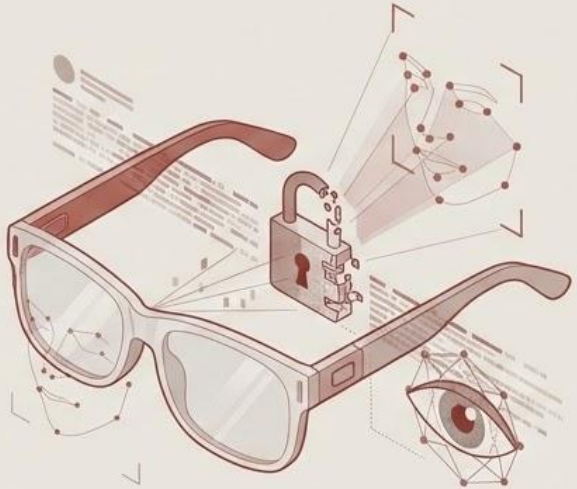
Challenges

Survival Challenges

Privacy, Identity, and Ubiquitous AI Glasses

- Always-on intelligence changes the privacy equation
- Questions of:
  - Who sees what
  - Who owns spatial data
  - Who controls identity
- Poor design leads to surveillance, not empowerment

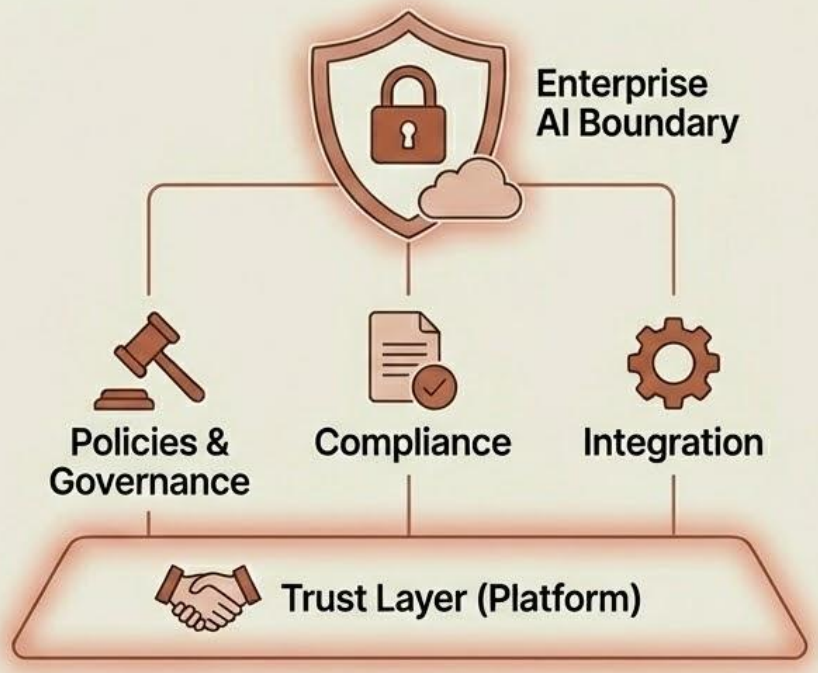


Platforms and Enterprise AI

Trust, Policies, and Responsible Systems

Immersive intelligence must operate within enterprise boundaries

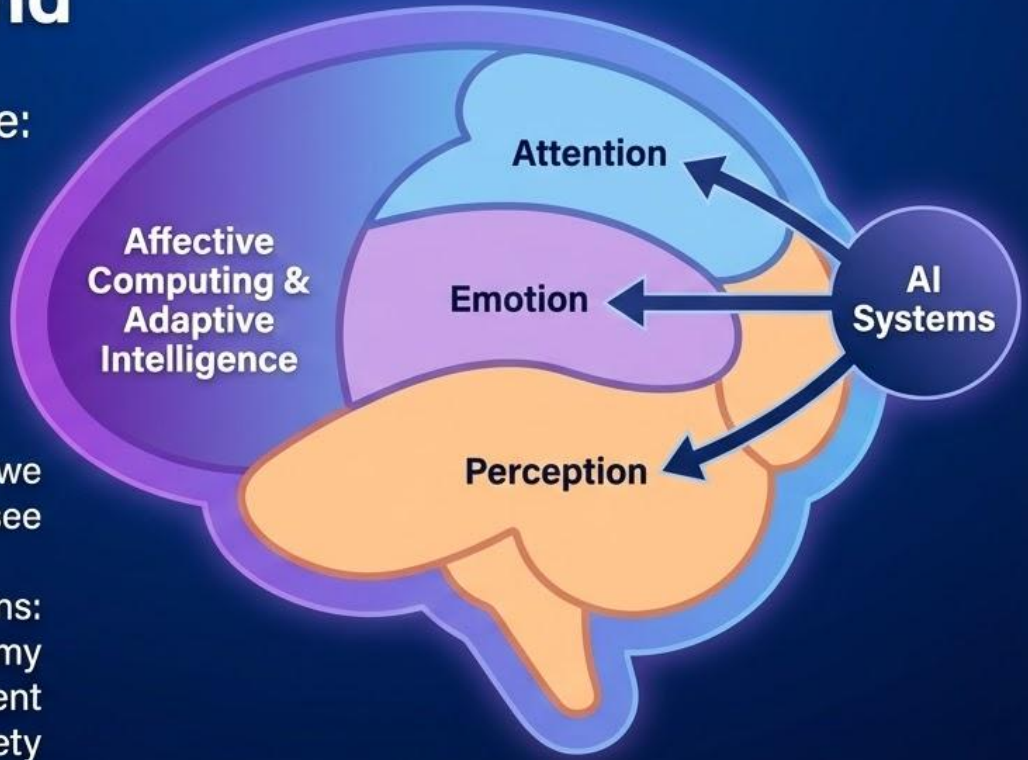
- Integration with policies, governance, and compliance is essential
- Trust becomes the platform layer



The next leap in immersion goes beyond sight and sound

AI systems are beginning to influence:

- Attention
- Emotion
- Perception



Experiences can shape how we feel, not just what we see

This raises new questions:

- Cognitive autonomy
- Emotional consent
- Psychological safety

Survival begins at the level of the human mind

Way forward!

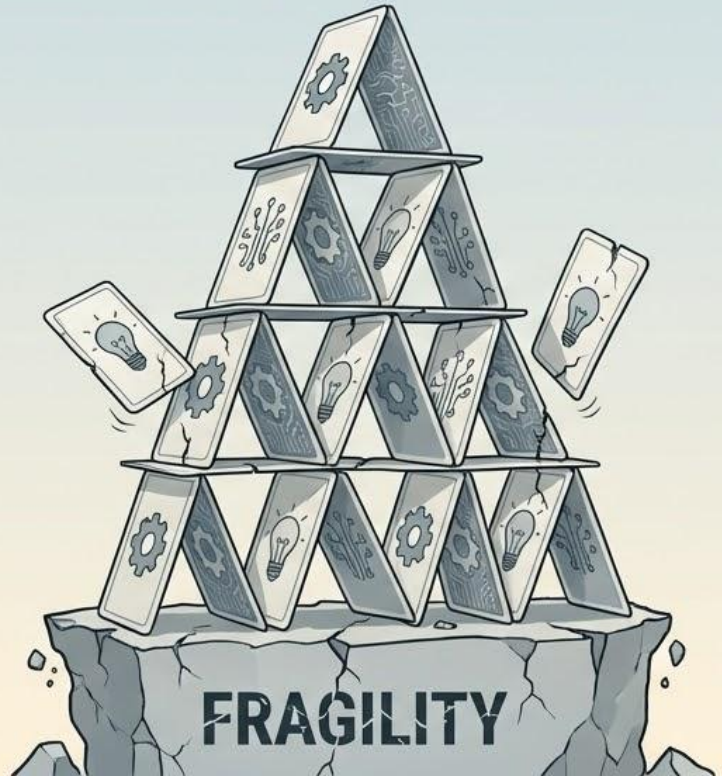
Innovation without responsibility leads to fragility

SURVIVING VS THRIVING

Designing for Resilience, Not Just Innovation

Designing for Resilience, Not Just Innovation

SURVIVING



THRIVING REQUIRES:

Standards Matter the most

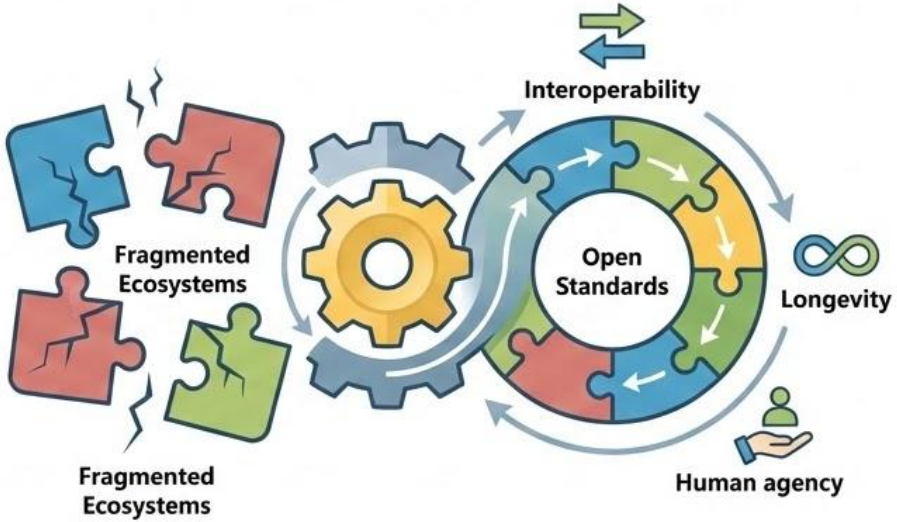
Open XR, Interoperability, and User Control

Fragmented ecosystems erode trust

Open standards enable:

- Interoperability
- Longevity
- Human agency

Standards are survival tools, not technical details

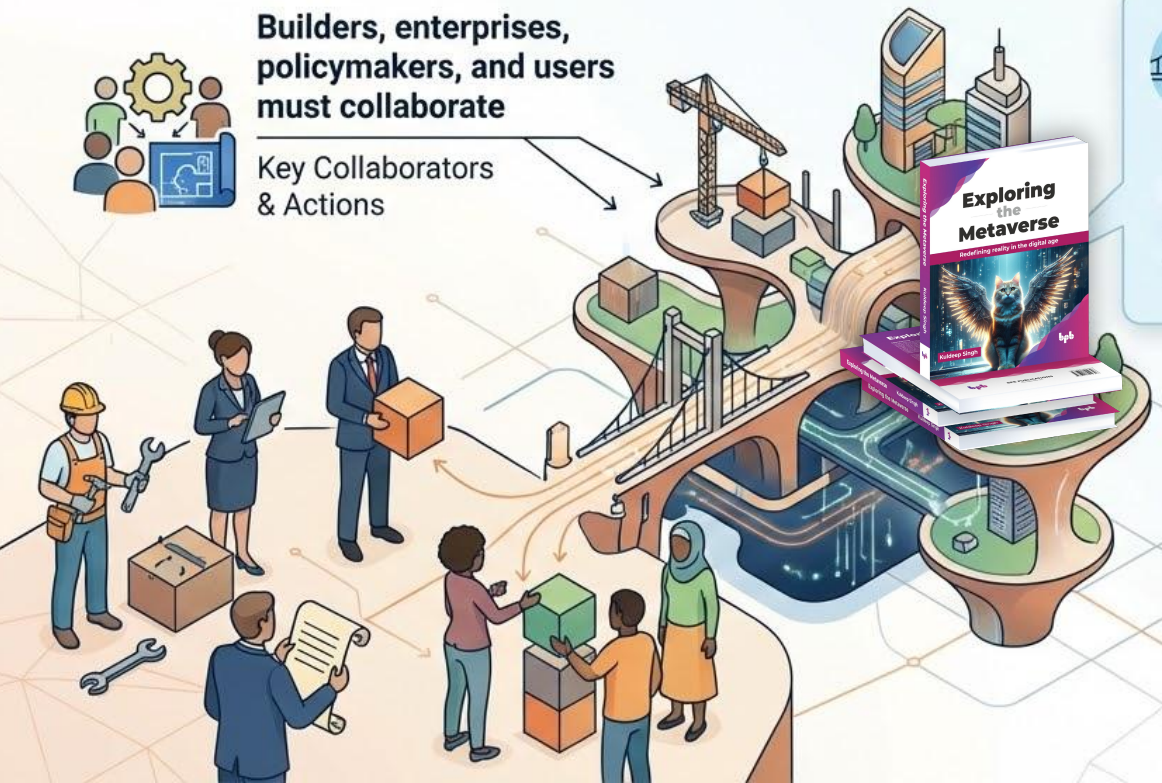


Call to Action: Building the Future Together

The immersive intelligent world is a shared responsibility

Builders, enterprises, policymakers, and users must collaborate

Key Collaborators & Actions



As explored in *Exploring the Metaverse:*

The next internet is societal, not just technical.

The future we survive in is the future we choose to build

Conclusion: Our Choice

Way Forwards: Navigating the Metaverse & AI Glasses Era

Embrace Ethical AI

Prioritize fairness, transparency, and accountability in AI development and deployment within the Metaverse. Ensure AI systems are unbiased and respect user privacy.

Foster Collaborative Innovation

Encourage open standards, interoperability, and cross-industry partnerships to build a unified and accessible Metaverse ecosystem. Break down silos.

Design for Human Well-being

Focus on creating positive and meaningful experiences that enhance human capabilities and connection, rather than just engagement metrics. Address potential negative impacts on mental health.

Invest in Digital Literacy

Educate users about the capabilities and risks of AI and the Metaverse. Empower them with the skills to navigate and participate effectively in the new digital landscape.

Develop Robust Policy Frameworks

Establish clear regulations and guidelines to govern the Metaverse, addressing issues such as data ownership, intellectual property, and content moderation. Ensure a safe and secure environment.

THANK YOU

Kuldeep Singh
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