

Immersive Technology

Impact on the Automotive Industry

LEADERS' SPEAK



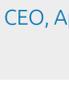
"The next platform and medium will be even more immersive and embodied on Internet where you're in the experience, not just looking at it. We call this the metaverse."

Mark Zuckerberg
CEO, Meta



"The metaverse is here, and it's not only transforming how we see the world but how we participate in it – from the factory floor to the meeting room."

Satya Nadella
CEO, Microsoft



"I do think that a significant portion of the population of developed countries, and eventually all countries, will have AR experiences every day, almost like eating three meals a day. It will become that much a part of you."

Tim Cook
CEO, Apple



"The metaverse is coming. Metaverse is not only a place to game. Future worlds will be photorealistic, obey the laws of physics and be inhabited by human avatars and AI beings."

Jensen Huang
CEO, Nvidia

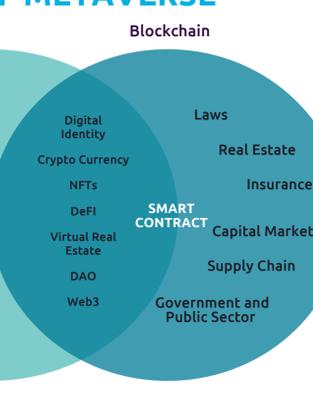
UNDERSTANDING THE METAVERSE

WHAT IS A METAVERSE?

"Metaverse creates an immersive virtual world, where users interact digitally, as they would have interacted in a physical world, aiming to deliver combined online digital Customer eXperiences (CX) and Employee eXperiences (EX) with real-life feelings."

METAVERSE - IN A NUTSHELL

"It is a container for public and private decentralized 3D virtual spaces which delivers online digital customer experience, generated by a sense of presence and space, speech, gesture, touch, and even smell."



TECHNICAL LAYERS OF METAVERSE



LEVERAGING IMMERSIVENESS IN AUTOMOTIVE INDUSTRY

WHY FOCUS ON IMMERSIVENESS?

Substantial investments signal confidence in the potential of the Metaverse



Source: JP Morgan

Automotive in Metaverse



CAGR 31.4%
The global metaverse market for Automotive is projected to reach \$16.5 billion by 2030 at a CAGR of 31.4% during the forecast period.

**Inclusive of immersive and other applications i.e., upstream & downstream operations*

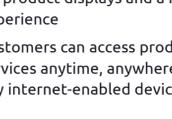
Source: Markets & Markets

HOW CAN IMMERSIVENESS CREATE NEW VALUE PROPOSITION FOR OEMs?



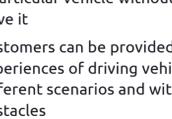
New experience-based services

Develop a unique driving experience for all passengers by merging in-car and out-of-car experiences



Brand loyalty

Foster loyalty to the brand from fans and drivers by connecting communities and creating unique experiences



USE CASES

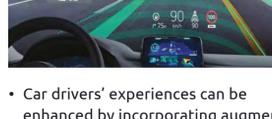
1. NEW EXPERIENCE-BASED SERVICES

OUT-OF-CAR EXPERIENCE
Virtual showrooms



- 360° immersive spaces which provide 3D product displays and a rich brand experience
- Customers can access products and services anytime, anywhere, and from any internet-enabled device

IN-CAR EXPERIENCE
Virtual test drives



- A preview or virtual experience driving a particular vehicle without having to drive it
- Customers can be provided with experiences of driving vehicles in different scenarios and with varying obstacles

Engagement through private Metaverse



- Brands can provide immersive experiences to their customers and stakeholders through multiple offerings
- Multiple virtual spaces can be combined to offer services to bring fans, customers, partners, and employees together to engage

AR/VR through in-car display/HUD



- Car drivers' experiences can be enhanced by incorporating augmented reality on vehicle display units/windshields
- By mixing virtual, reality, entertainment, and utility, AR and metaverse technologies offer new forms of recreation, resulting in an immersive and complete user experience

USE CASES

2. BRAND LOYALTY

OUT-OF-CAR EXPERIENCE
NFT Brand collectibles



- Brands can introduce an exclusive collection of collectibles for its brand communities
- Brands can associate benefits such as access to "members only" channels and interactions with the brand team

TOKENIZED ASSETS
Tokenized car sales



- Brands can launch cars/concepts as NFTs and sell to customers through their Metaverse platforms
- Digital assets can be sold offering full/fractionalized ownership

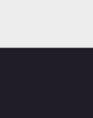
Token-based loyalty programs



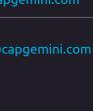
- Brands can provide incentives to their token holders with exclusive offerings and utilities
- These may range from gifts, event invites, to exclusive brand-related services (e.g., program enrollments)

KEY CONSIDERATIONS FOR OEMs TO ADOPT METAVERSE

PLANNING RETURN ON INVESTMENT
OEMs need to begin by understanding their target audience. They will want to create success metrics to measure their impact on the audience

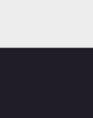


BUILDING WORKFORCE OF THE FUTURE
Creating community managers focused on creating robust online and offline relationship-building and interactions to strengthen platform engagement



DATA PRIVACY AND CYBERSECURITY
User identification and privacy safeguards will be crucial for both interacting and transacting in the Metaverse

DEFINING BUSINESS MODEL
Building an online presence; mastering 2D models; focusing on the target audience; getting comfortable with NFTs and Cryptocurrencies



COMMERCIAL INFRASTRUCTURE
Web 3.0 virtual world integrations with legacy traditional finance payment trails (e.g., credit cards, pay via bank). Evolution of virtual/cryptocurrencies and digital asset-backed financing, leveraging decentralized finance



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