A TREND SONAR REPORT

METAVERSE TRENDS

Disentangling the value from the hype.

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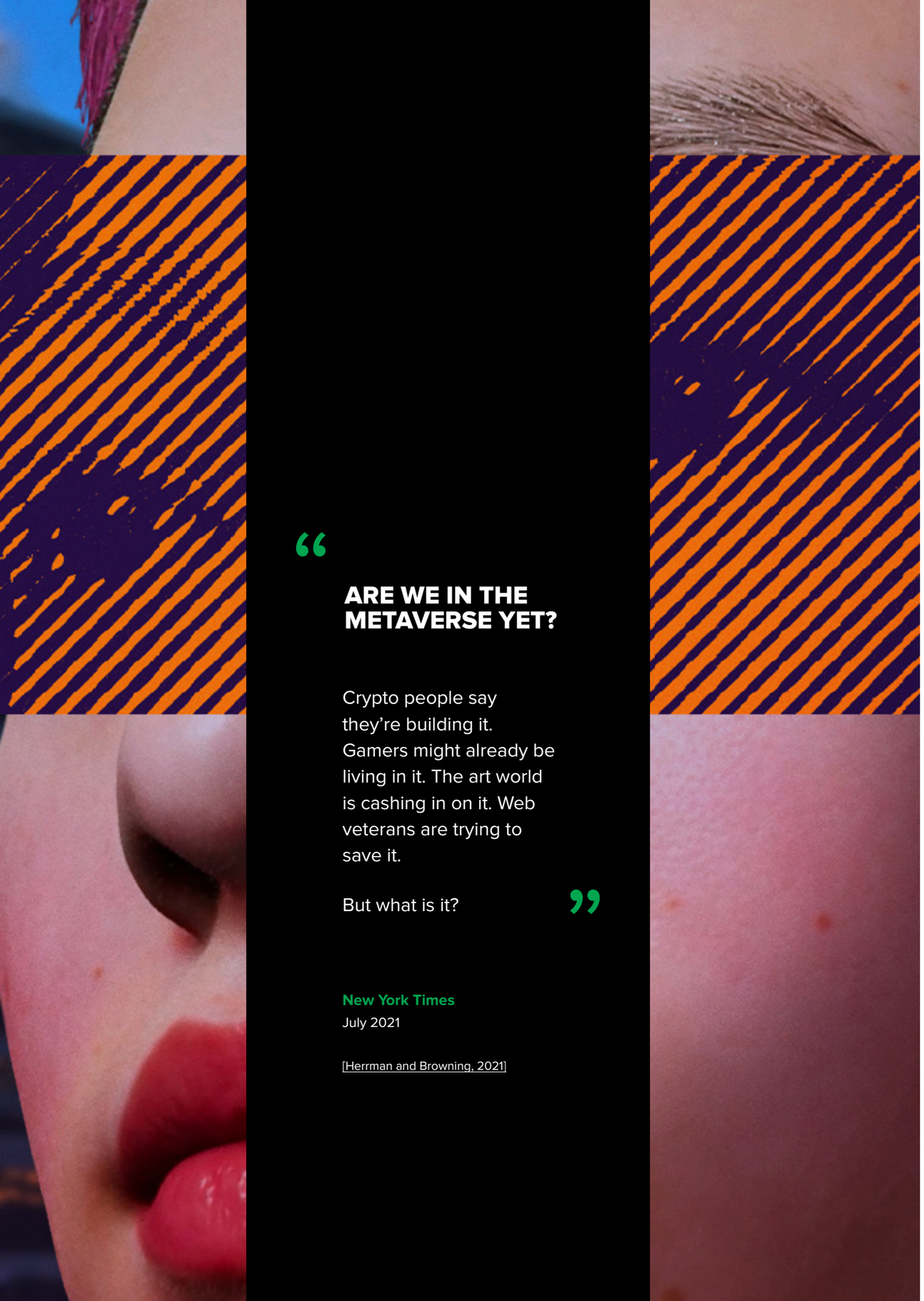

ARE WE IN THE METAVERSE YET?

Crypto people say they’re building it. Gamers might already be living in it. The art world is cashing in on it. Web veterans are trying to save it.

But what is it?

New York Times
July 2021

[Herrman and Browning, 2021]

METAVERSE TRENDS

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FOREWORD

Last year, the concept of the metaverse exploded onto the public scene following Facebook's re-branding as Meta and newfound dedication to paving the way toward a decentralized Web3. Combined with exponential technological growth and the popularity of NFTs and blockchain-based currencies, the result was an emerging interest in 3D online spaces that will supposedly redefine social life, societies, and industries as we know them. But to understand the metaverse, it is crucial to move beyond the hyped headlines and determine whether the buzz has actual business value.

It is difficult to pin down one singular definition of the metaverse, but the concept loosely serves as an umbrella term to describe networked worlds of device-independent virtual reality spaces, underpinned by spatial computing and distributed ledgers of information.

The components of the metaverse are comprised of layers of technology, such as: decentralized information in distributed ledgers (e.g., blockchain), AR/XR/MR/VR, volumetric video and 3D engines, digital experiences compatible with anything from 2D PCs or mobile interfaces to haptic interfaces and holographic scenery, and finally, edge computing and machine learning.

The metaverse space is already getting crowded with competition, from Roblox to Meta to Decentraland. The different services can be classified by the **building blocks** of their platforms and the **experiences** they provide.

The building blocks are further divided into:

- **The creator economy** – e.g., creator platforms, content creation, audience engagement, low/no-code tools.
- **Enabling tech**, including the following:
  - **Spatial computing – e.g., VR/AR/XR/MR, spatial audio, etc.**
  - **Decentralization – blockchain, NFTs, cryptocurrencies, Web3, etc.**
  - **Interface – e.g., VR headsets, smart glasses, haptics, voice, etc.**
  - **Infrastructure – 5G/6G network technology, WiFi6, GPUs, chips & processors, cloud computing, edge computing.**

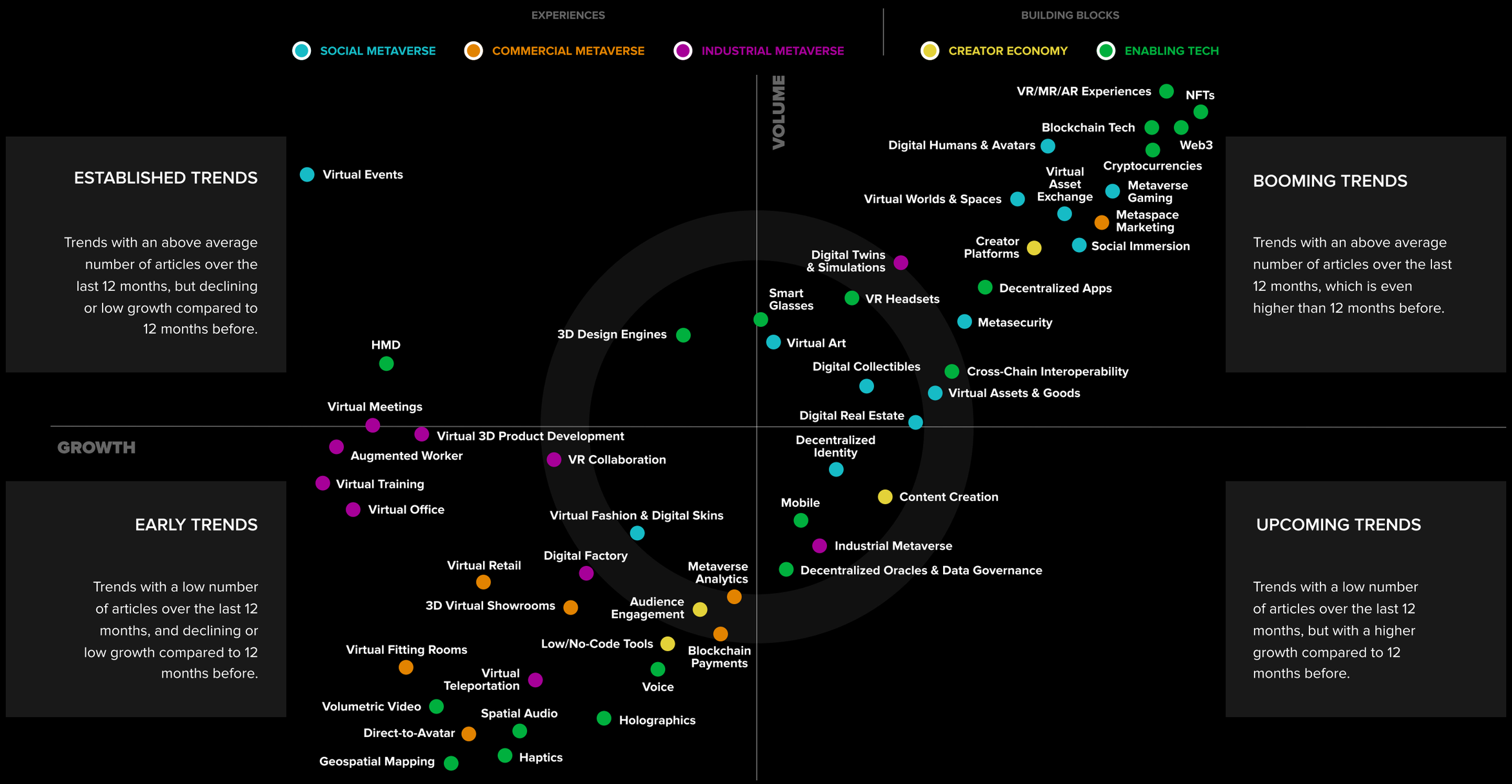
The experiences can be further divided into:

- **The social metaverse** – e.g., decentralized identity, asset marketplace, virtual fashion, virtual events, metaverse gaming, etc.
- **The commercial metaverse** – e.g., virtual retail, 3D virtual showrooms, blockchain payment, metaspace marketing, etc.
- **The industrial metaverse** – e.g., virtual office, augmented training, VR meetings, digital twins & simulations, virtual factory, etc.

For our report, we decided to dive deeper into the three experiences offered by metaverse platforms, examining current and developing practices and deducing the likely next steps for companies operating in each category.

THE METAVERSE HYPE-CYCLE

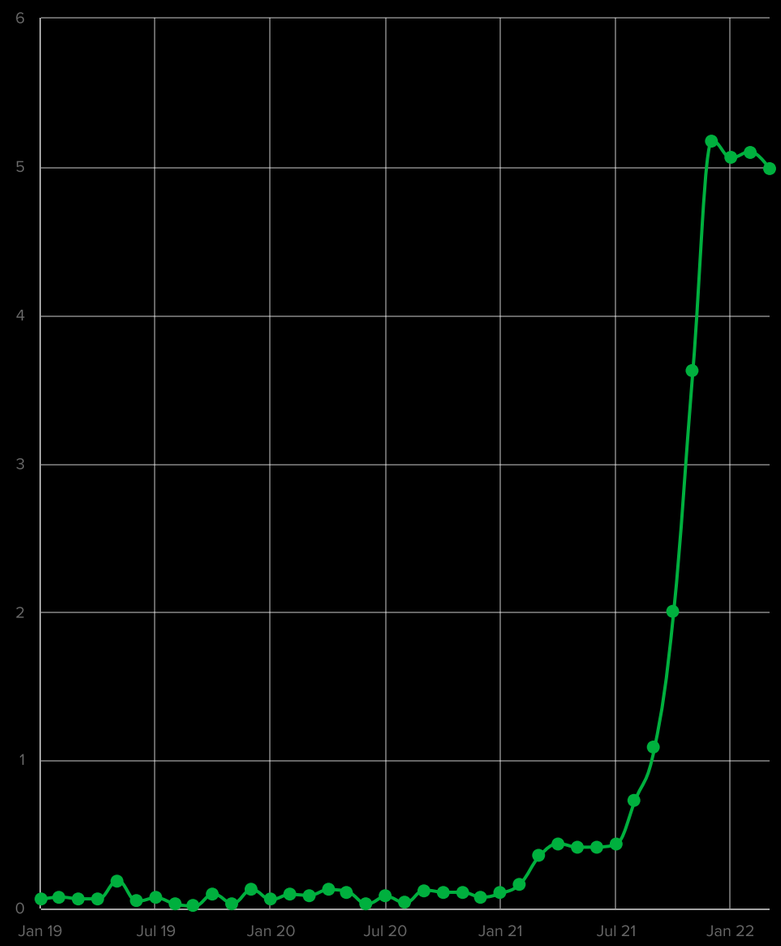
Reply Sonar Trend Platform quantifies media interest in trends by analyzing expert blogs, news sites, patent filings and scientific publications, identifying the most talked-about trends, players and projects within a field.



Timeframe: Dec 2021 - Nov 2022

GROWTH OF INTEREST IN THE METAVERSE

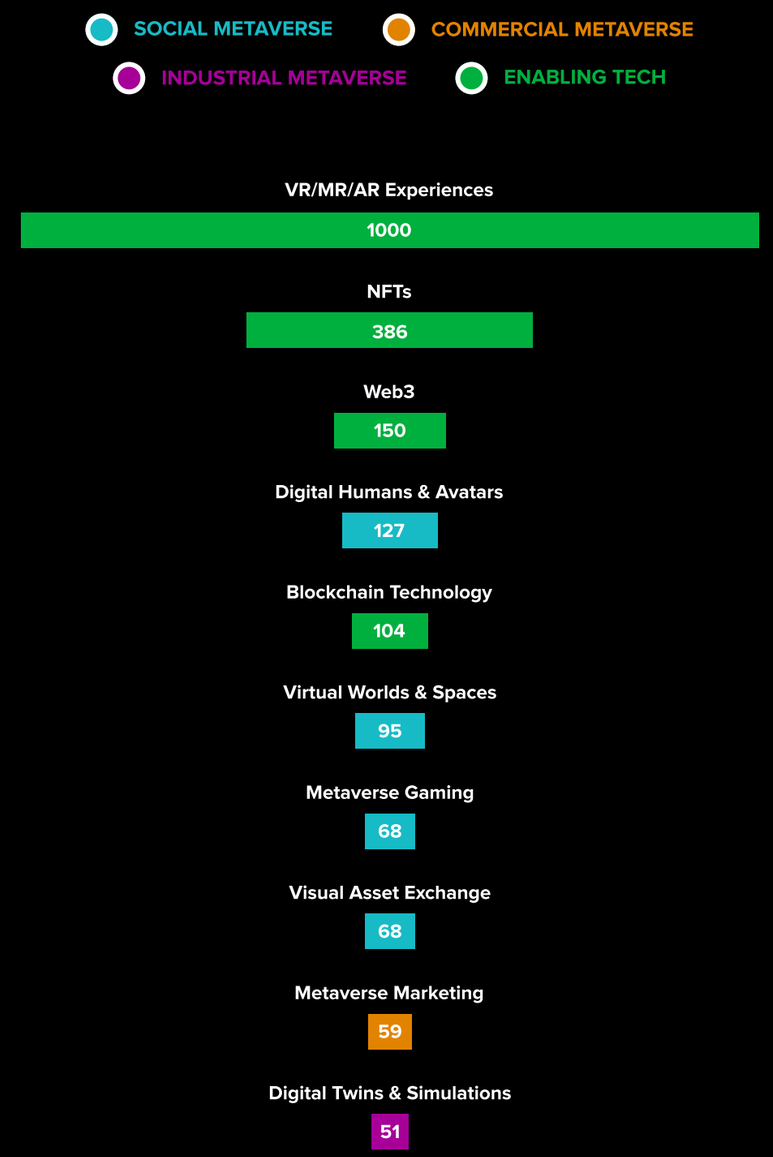
VOLUME OF “METAVERSE” ON REPLY SONAR



GROWTH: +3.236%

Number of explicitly “Metaverse”-related Articles in Sonar Index

TOP RELEVANT TRENDS BY RELATIVE VOLUME



THE SOCIAL METAVERSE

Not only will substantial technological change improve our digital realities, it has the potential to change how we live, our daily routines, meetings, and interactions. The social aspect of the metaverse involves metahumans, virtual assets, digital venues & third places, and new social networking possibilities.

METAHUMANS

As avatar technology creates hyper-realistic 3D entities that can be equipped with changing digital skins, this could affect our understanding of virtual self and identity – users may choose to create a digital twin of themselves, or they could express as many digital versions of themselves as they wish, either realistic or idealistic. Additionally, the creation of decentralized identities opens up the possibility of absolute ownership of digital identity, and thus potential interoperability of identity across platforms and systems. This draws ethical questions when it comes to dealing with faked human entities or determining appropriate etiquette across the virtual space.

VIRTUAL ASSETS

Decentralized ownership of NFTs, virtual goods, and real estate opens up a new tokenomics economy and a fresh way of viewing assets. For example, the direct-to-avatar (D2A) business model sees products being sold directly to digital identities. There is other evidence that virtual assets are taking off: trading in NFTs spiked 21,000 percent in 2021 [Browne 2022], real estate sales in the metaverse are forecast to double in 2022 from 2021 [Frank, 2022], and as of this year, 65 percent of Gen Z consumers have spent money on a virtual item that exists only within the confines of a video game [Mallis, 2022].

DIGITAL VENUES & THIRD SPACES

Due to the pandemic, improving visualization technologies, and gaming-environments-turned-social-spaces, virtual experiences are now reaching a broader audience than ever before. For example, a virtual Travis Scott concert saw 45.8 million attendees on Fortnite [Ocal, 2020]. In particular, the gaming world has facilitated the spread of virtual events to adjacent virtual spaces, as almost a quarter of gamers have attended a live, in-game event in the past year. These experiences are only predicted to become more immersive, ultimately using sensors and extended tactile, haptic, auditory, and perceptional feedback to create two-directional gateways.

NEW SOCIAL EXPERIENCES

Gen Z seems to be trailblazing social interaction in the age of the metaverse, particularly by driving the growing popularity of the gaming market as it surpasses traditional social media popularity. Rather, these gaming spaces are becoming social hubs themselves, blurring the lines between entertainment and meaningful human connection. But as digital giants and online gaming and entertainment companies all work to realize parts of the social metaverse, the result is a multitude of metaverses – the multiverse, if you will. And just like with traditional social media spaces at the moment, the multiverse will need to address current issues and drawbacks including misinformation, data privacy, hate speech, and more.

THE SOCIAL METAVERSE: NEXT STEPS

As the metaverse shapes the next generation's social interactions, it will enable creators and contributors to create a new, inclusive, and ethical digital world that supports creating meaningful connections with others. This social metaverse will include photorealistic avatars reflecting users' physical or idealistic identities, interoperable and connected digital spaces and networks, 3D immersive environments, haptic touch, emotional reactions, "phygital" spaces, decentralized identities, decentralized marketplaces, NFTs & digital investments, virtual goods, and ownership and control that is ultimately in the hands of creators.

> "The way that we define the metaverse is that it's like the virtual world; it's going to be our virtual existence. Right now, we have our real lives and our social media lives—the metaverse will be one step above that, like our virtual twin, doing all kinds of activities in the virtual world. You will have a whole existence that can happen in these virtual environments."

Neha Singh
Founder and CEO
Obsess

[Wunderman Thompson, 2021]

THE COMMERCIAL METAVERSE

It is increasingly important to investigate how the metaverse will reframe human-centered customer experiences and impact how brands will design future offerings and customer journeys across various industries. The commercial aspects to be explored here are meta-commerce, metaspace marketing, and analytics in 3D environments.

META-COMMERCE

The selling experience is evolving to combine the best of online and offline retail. Now with consumer haptic tech, virtual show rooms, and immersive retail, individuals will be able to experience digital versions of physical products and make more informed decisions, in addition to likely purchasing more digital products and experiences as they spend more time in the metaverse. On the other side, physical retail experiences will be augmented by the metaverse to add convenience to the in-person shopping experience. It is predicted that 30 percent of businesses will have products and services in the metaverse by 2026 [Gartner, 2022].

METASPACE MARKETING

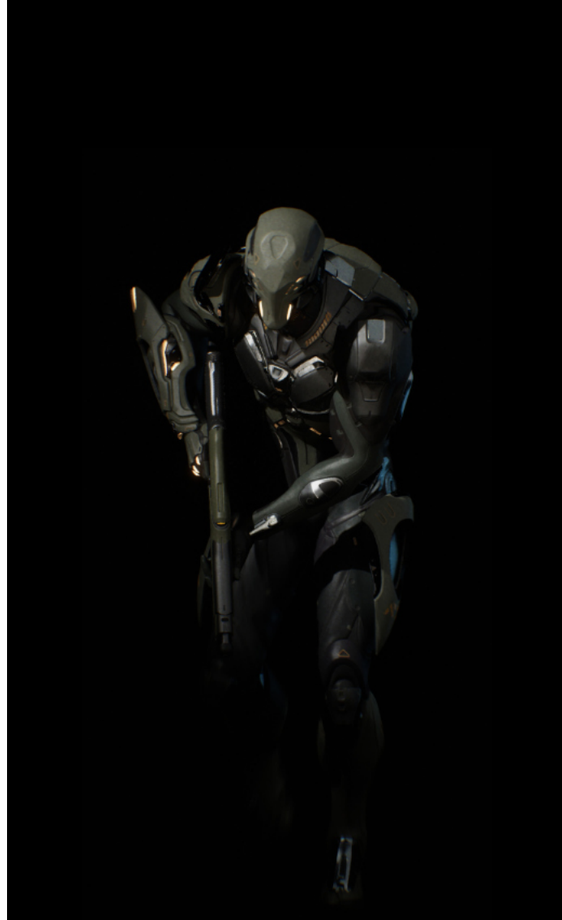
Now that consumers are spending more time and money in the metaverse, particularly Gen Z, more brands are realizing the importance of exhibiting those spaces in engaging ways to promote their brand and products. The opportunity for real-time marketing will drive deeper engagement, but a savvy data-handling strategy is crucial for demonstrating proper handling of consumer data.

ANALYTICS IN 3D ENVIRONMENTS

The future of data is 3D, increasingly fed by spatial and 3D environments, real-time consumer (or avatar) behavior, interaction and communication, eye tracking, biometrics, IoT sensors and digital twins. Brands and marketers will need to adapt their consumer intelligence strategies to catch up with these new metrics and KPIs. The sheer volume of data will demand new levels of AI capabilities and processing power.

THE COMMERCIAL METAVERSE: NEXT STEPS

The future virtual economy is gradually building and cannot be simply ignored in favor of the physical one. Business leaders need to start thinking strategically about how to head into this new **commercial metaverse**, such as by converging on- and offline, creating metaverse-only businesses, including virtual worlds and spaces as part of the marketing mix to be considered when targeting specific groups, retrieving real-time data about people and processes when conducting real-time marketing, and expanding 3D analytics capacity via AI to include spatial data, biometric data, and sensor-based behavioral data. Organizations need to consider if they are prepared for the tidal wave of data that is about to hit the shores of the marketing industry and not shy away from addressing safety issues and adhering to the ethical standards of these new digital spaces.



> “Virtual worlds are going to be marketing battle ground for companies. In the future, we are going to see online persistent, massively multiplayer game worlds where advertisers and marketers are going to have to claim space, but how they do that is going to be very complex.”

Keith Stuart
Games Editor
Guardian

[Chiu, 2021]

THE INDUSTRIAL METAVERSE

Organizations can look forward to reaching new efficiencies and operations of scale beyond simple remote meetings, digital twins, and virtual trainings. Areas to explore include virtual collaboration, next level engineering, and augmented learning.

VIRTUAL COLLABORATION

XR and hologram technologies take virtual meetings and workplaces to the next level, allowing a more visceral experience when reading human interactions through body language and use of space. These technologies may disrupt the future of work, eliminating business travel while still enhancing collaborative experiences like workshops.

NEXT LEVEL ENGINEERING

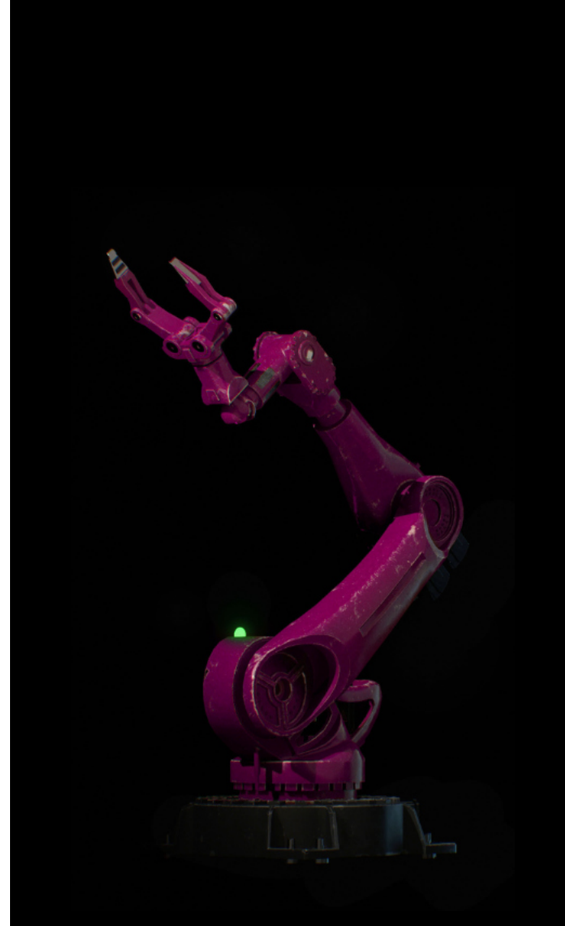
The product development process of ideation, prototyping, and testing for market can be significantly improved in the metaverse, moving past 2D drawing boards and 3D renderings to 4D collaborations and simulations. Products can be tested in the metaverse before ever coming to market, increasing the efficiency of the process, multiplying convenience, and likely reducing returns.

AUGMENTED LEARNING

Workplace training can enter virtual settings, offering hands-on experience in a secure test environment and allowing organizations to easily onboard new employees, upskill existing ones, or provide remote assistance. Though there are higher barriers to entry, the ROI shows dividends in knowledge retention thanks to more memorable training experiences, scalability, and flexibility for location, timing, and participant numbers. Additionally, training data feedback may be used to create continuously improving training sessions.

THE INDUSTRIAL METAVERSE: NEXT STEPS

As organizations get acquainted with the metaverse, they can use new technologies to offer immersive business meetings that include expressive avatars and realistic spatial environments, virtual products as blueprints for production, virtual market testing, and immersive, memorable, and continuously-improving training experiences. However, enterprises must first consider whether there is actual business value in incorporating metaverse technologies into their business strategy, and if so, how to include meta-work and educate their staff to have the necessary skillset prior to implementation.



> “Omniverse enables our globally dispersed teams of 3D designers, artists, reviewers to work together in real-time across leading software applications.”

Rev Lebaredian
VP of Simulation Technology and Omniverse Engineering
NVIDIA

[CMSWire, 2022]

FIRST CHALLENGES

Understanding the challenges for adoption is a core aspect of pursuing metaverse strategies. Considerations need to be made about the near future barriers to growth, metaverse security, and consumer acceptance and trust.

70%

of C-Suite executives are planning a metaverse strategy or have started implementation.

[Brightdata.com, 2022]

$10B

Investment in virtual world start-ups by venture capitalists in 2021.

[Crunchbase.com, 2021]

$800B

Global metaverse market by 2028.

[Emergen Research, 2022]

BARRIERS TO GROWTH

From a technological standpoint, the expansion of the metaverse hinges on the scalability of spatial computing, internet bandwidth, and energy efficiency, as well as navigating interoperability protocols if we truly want to see a networked virtual world. Social and political issues of privacy, ethics, regulation, and overall acceptance may also present obstacles to mass adoption in the near future.

METAVERSE SECURITY

As technology rapidly facilitates the creation of new worlds, users and creators are challenged to redefine social norms of access, etiquette, and performance. We must answer the questions of who has authority in a decentralized world and who manages social order and protects users from nefarious activities. Additionally, new floods of (un)structured data that underpin these worlds must be managed and secured.

CONSUMER ACCEPTANCE

Though brands and corporations are cashing in on the metaverse, the final frontier is reaching the average consumer. While Gen Z may be embracing the metaverse (particularly in the gaming realm), and some corporations see its business value, others are struggling to imagine the utility of these networked digital worlds. In particular, the issue of access to the metaverse remains a barrier, as VR headsets and haptic devices are not ubiquitous household items. Beyond that, the idea of being “plugged in” to the metaverse for extended periods of time may seem excessive or even claustrophobic to some users.

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