The Metaverse: A New Horizon in Digital Reality

The metaverse has become one of the most talked-about topics in business. But what is the metaverse exactly, and why does it matter?

The metaverse is an evolving vision of a digitally native world where we will spend our time working, socializing, and engaging in activities. The metaverse will leverage the decentralized protocols and technology stack Web3 is set to provide, creating new communities and economies.

According to Gartner, by 2026, around 25% of people will spend at least one hour a day in the metaverse for work, shopping, education, social media, and/or entertainment.

Depending on whom you ask, the metaverse exists already. Indeed, aspects of the metaverse exist today; however, they are not yet connected, which metaverse purists believe needs to happen for the metaverse to exist truly.

Many companies have started investing in the metaverse and its building blocks, such as augmented reality, virtual reality, and non-fungible tokens (NFTs) - unique digital assets stored on a blockchain. Many businesses have grasped the value of an ecosystem driven by a token-based economy to benefit from emerging blockchain-enabled business models.

Metaverse Market Insights

GLOBAL METAVERSE MARKET 2018-2028

Market is expected to REGISTER a **CAGR** of 43.3%

45.3% of global market revenue was accounted for by North America in 2020

The market was valued at $ 47.69 Billion in 2020

Based on component, hardware segment is expected to register a **CAGR** of 43.9%

One of the **KEY DRIVERS** for market growth is rising focus on converging digital and physical worlds through Internet

The market is **FAIRLY CONSOLIDATED** with few players accounting for majority market revenue
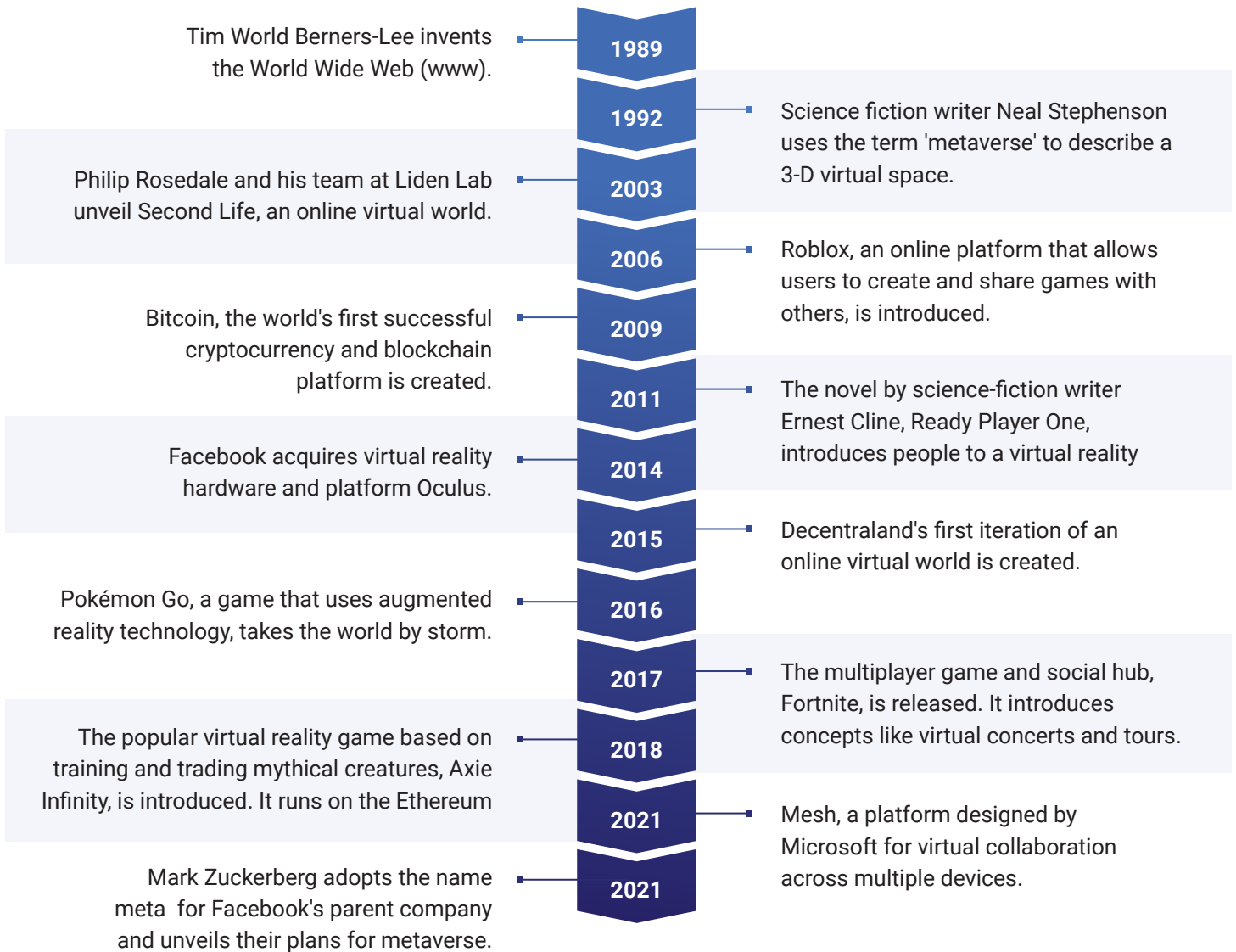
Source: https://www.emergenresearch.com/industry-report/metaverse-market

The metaverse will certainly change the way businesses work. Organizations are trying to tap on the potential of this evolving technology by onboarding more and more of their customers to the new digital platform through experiential models.

The Metaverse Evolution

Author Neal Stephenson coined the term "metaverse" in his 1992 science-fiction novel "Snow Crash". Fast forward 30 years; the metaverse now stands to revolutionize the digital world and is backed by an arsenal of innovative technologies such as VR, AR, and blockchain.

METAVERSE: EVOLUTION TIMELINE

Tim World Berners-Lee invents the World Wide Web (www).

1989

1992 — Science fiction writer Neal Stephenson uses the term 'metaverse' to describe a 3-D virtual space.

Philip Rosedale and his team at Liden Lab unveil Second Life, an online virtual world.

2003

2006 — Roblox, an online platform that allows users to create and share games with others, is introduced.

Bitcoin, the world's first successful cryptocurrency and blockchain platform is created.

2009

2011 — The novel by science-fiction writer Ernest Cline, Ready Player One, introduces people to a virtual reality

Facebook acquires virtual reality hardware and platform Oculus.

2014

2015 — Decentraland's first iteration of an online virtual world is created.

Pokémon Go, a game that uses augmented reality technology, takes the world by storm.

2016

2017 — The multiplayer game and social hub, Fortnite, is released. It introduces concepts like virtual concerts and tours.

The popular virtual reality game based on training and trading mythical creatures, Axie Infinity, is introduced. It runs on the Ethereum

2018

2021 — Mesh, a platform designed by Microsoft for virtual collaboration across multiple devices.

Mark Zuckerberg adopts the name meta for Facebook's parent company and unveils their plans for metaverse.

2021

Source: https://www.cnbctv18.com/technology/explained-the-history-of-metaverse-12015212.htm

Web3 continues to evolve rapidly, working in tangent with the metaverse to create a new digital future that leverages content, communities, and blockchain-enabled economies.

NFTs have emerged as a core metaverse component, playing an integral role in identity, community, and social experiences across virtual worlds, gaming, marketplaces. The metaverse gives users an avenue to create, buy and view these digital assets, from digital real estate to art and unique avatar skins designed by top fashion brands.

As the metaverse is all about merging virtual and physical worlds, it is essential to have an interoperable and open-source public chain to ensure the virtual worlds that make up the metaverse overlap seamlessly and allow users to move assets from one to the other.

What's more, NFTs are secured by blockchain technology, meaning no one can modify the record of ownership or copy/paste a new NFT into existence. In short, blockchain's enhanced security helps detect and reduce fraud, unauthorized activities, and unauthorized access to your digital assets.

The digital protocols inherent in blockchain technology will also allow decentralized finance (DeFi) to play a much more prevalent role in the metaverse. As DeFi does not require centralized intermediaries (such as banks) to operate, services that were previously slow and at risk of human error are automatic and safer now that they're handled by code that anyone can inspect and scrutinize.

DeFi products let users borrow, save, invest, trade, and more, enabling a range of use-cases such as cross-border payments with minimal fees and the ability to finance new and innovative projects.

Industry leaders are seizing the opportunity to be a driving force in shaping the landscape.

NFTs represent ownership of something that cannot be duplicated; it is precisely this characteristic that organizations can leverage.

Beamable CEO Jon Radoff uses seven critical layers to explain the value chain that metaverse markets will create.

7 LAYERS OF THE METAVERSE
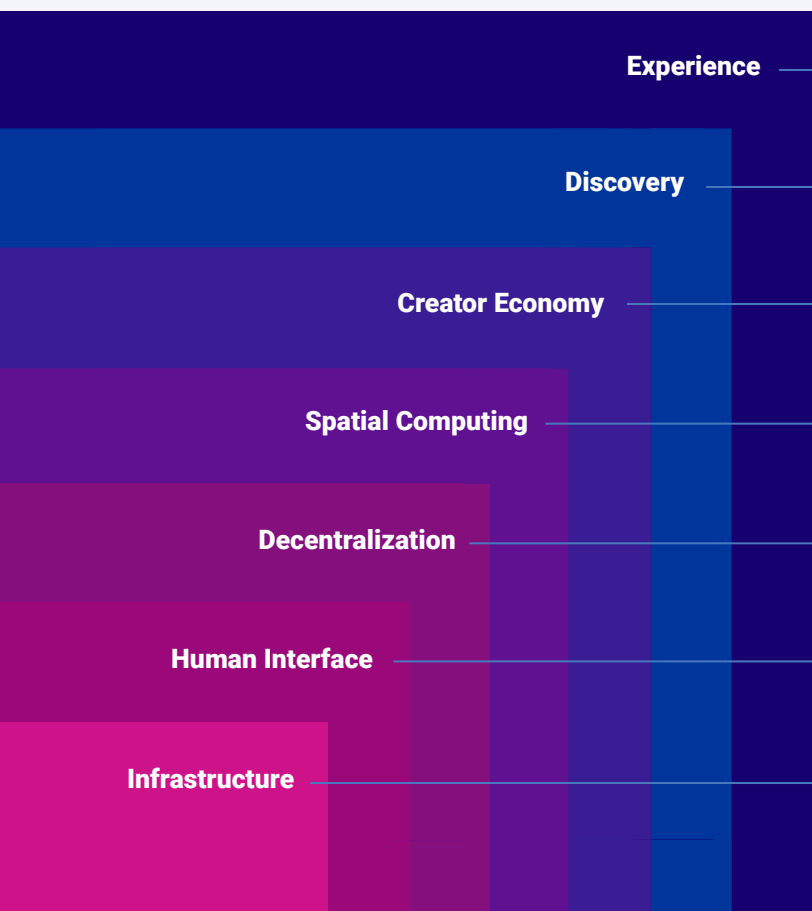
VALUECHAIN

Layer	Value Chain
Experience	Games, Social, Esports, Theatre, Shopping
Discovery	Ad Networks, Social, Curation, Ratings, Stores, Agents
Creator Economy	Design Tools, Asset Markets, Workflows, Commerce
Spatial Computing	3D Engines, VR/AR/XR, Multitasking UI, Geospatial Mapping
Decentralization	Edge Computing, AI Agents, Microservices, Blockchain
Human Interface	Mobile, Smart glasses, Wearables, Haptic, Gestures, Voice, Neural
Infrastructure	5G, Wi-Fi 6, 6G, Cloud, MEMS, GPUs, Materials

Source: Medium.com

A Holistic View of the Metaverse

THE METAVERSE CAN BE CLASSIFIED BASED ON THE FOLLOWING CONTOURS:

1

CONTENT
At a high level, this encompasses all sorts of software such as gaming.
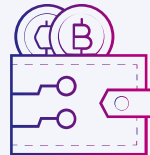
2

COMMUNITY
Users or individuals who interact across platforms eventually form a community.

3

CURRENCY /SETTLEMENT
Involves setting transactions for content creation, participation, or direct commerce.

4

DEVICES
Involves the hardware such as smartphones which would evolve and serve as a dedicated device or hardware for AR/VR functionality that can augment user experience.

5

INFRASTRUCTURE
It comprises hi-speed internet connectivity, edge computing, 5G, and 6G networks.

Metaverse Use Cases in Industrial Sectors

The metaverse will revolutionize nearly all aspects of life and business in the next decade, allowing collaboration in virtual spaces, augmented physical places and a blend of both. It will also create new lines of business and transform interactions between customers and companies, with some ambitious brands already working to shape the rules and expectations for our new worlds.

There is no doubt additional players will enter the race, opening the realm of innovation and transformation. While the opportunities are endless for enterprises across the board, cutting-edge use cases are already emerging across the Retail, CPG, Logistics, Manufacturing, and Healthcare industries.

Retail

As consumer experience is the core element of retail business, the metaverse will push the boundaries of imagination by making the shopping experience better than before. It will enable us to enter the virtual stores as digital avatars and engage in shopping the same way we shop at physical stores. Trying on clothes, no queues, paying using digital currencies, and hassle-free doorstep delivery, all this from the comfort of your space.

The prime focus for the retail industry would be to aboard maximum customers to the virtual space and convert them into their purchasers by offering an unparalleled CX.
Companies have already set their foot into the metaverse by creating virtual shopping experiences for their customers during the annual shopping holiday in China and Singles Day. Similarly, few other retail players like Gucci, P&G have also entered the metaverse world setting an example for the next generation retail business.

Shopping Experience
Metaverse spaces can provide an enticing experience for retailers and customers to sell and buy, respectively. Recently, Gucci and Louis Vuitton sold digital accessories and jewelry for digital avatars. Few limited-edition virtual accessories were on sale in the Gucci Garden Space in Roblox costing from $1 to $9.

Branding
Few retail companies are collaborating with online gaming companies to promote their band in the virtual space.

Augmented Reality
Few of the leading retail providers in the world are investing in augmented reality to offer exceptional experience to their customers by helping them visualize items in the digital world using apps. For example, customers can get a better view of the shopping items like clothes or furnishings.

Healthcare

The healthcare sector has entered digitalization. It is on the cusp of indulging in AR & VR technologies offering capabilities never imagined before. The healthcare sector holds the potential for the metaverse, but the only question that persists in mind is how this digital interface would comply with regulatory norms. Nevertheless, metaverse brings boundless prospects in the healthcare field in such a way that it meets human aspects through experiences while maintaining the human touch in the doctor-patient relationship. The metaverse finds its use across various digital healthcare applications, ranging from real-time patient monitoring, design of medical tools, digital surgical procedures, virtual treatment, and training the workforce, thereby facilitating improved patient engagement and better patient experience during the entire journey.

METAVERSE USE CASES IN HEALTHCARE

Training
Interactive videos with a 360-degree view of the content helps the fellow doctors and other medical staffs to get proper training on various medical process/procedures, for example, visualization & simulation, step-by-step work instructions, collaborative training, surgical training, pre-operation planning, and more.

Digital Surgery
There are FDA 510k cleared platforms, which can convert 2D medical images into 3D models that felicitate surgical planning, training, and collaboration. Such a platform provides various tools that enables its direct use on the 3D models in VR.

Virtual Treatment
FDA approved VR/AR apps combined with telehealth can offer personalized care to the patients in virtual treatment rooms with licensed therapists. Treatments like physical therapy, Stress/Anxiety/ Depression management, ADHD, speech-language therapy, pain management, post covid rehab, occupational therapy, cognitive training are a few that can be offered to patients.

Manufacturing

Manufacturing is a critical part of supply chain management and involves many complex processes. Several components involved in the manufacturing production process include inventory costs, labor cost, speed of production, QC & QA, etc. The major pain points of this industry are quality control concerns, long-term contracts, and production design risks, which can lead to manufacturing delays, faulty products, and customer dissatisfaction.

A metaverse-driven approach in the manufacturing sector enhances the effectiveness of supply chain management, production designs, and inventory management. The three key highlights of the metaverse in manufacturing include rapid production process with collaborative product development, increase in product designs, and visibility into supply chain processes providing transparency to customers.

METAVERSE USE CASES IN MANUFACTURING

Design & Development
Companies are using virtual platforms that offer real-time photorealistic simulation and collaboration. This offers projects teams with the flexibility to connect at every phase of the process from ideation and conceptual design to production automation on the factory floor.

Digital twin
Developing 3D content in real-time and assisting in the development of various applications is helpful in the manufacturing industry. Companies can use virtual copies of plants and workshops that can assist in identifying design flaws. As a result, this helps players in the manufacturing industry to efficiently design and maintain the production process.

CPG
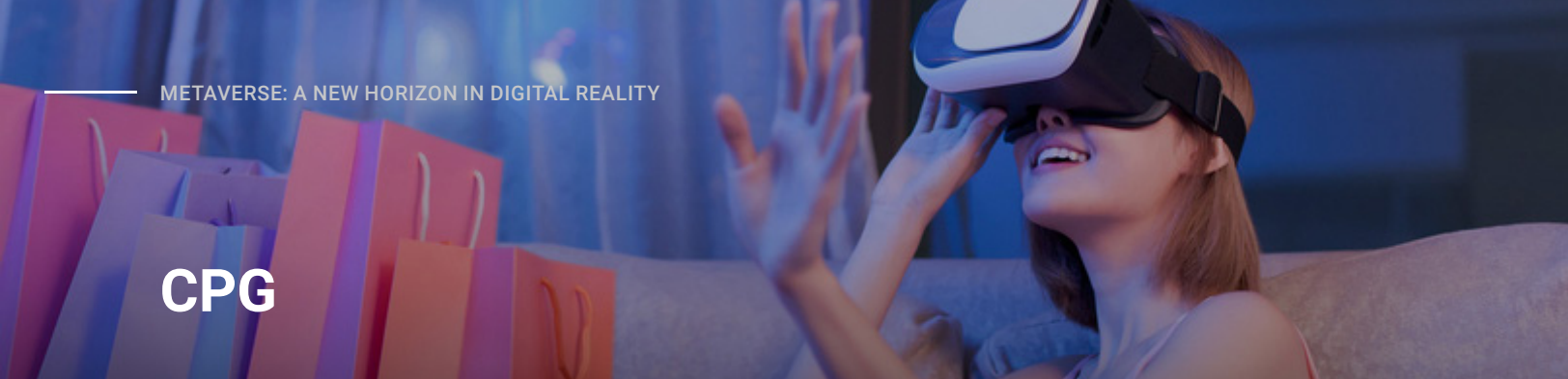
The metaverse offers a host of opportunities in the consumer-packaged goods (CPG) space. With consumers consistently on the lookout for novel and enticing experiences, the metaverse presents CPG players with potential use cases that can connect consumers across the globe by way of gamification and enhanced user experience and consequently blurring the lines between physical and virtual lives. The immersive experiences can help create a real-time presence of a brand in the virtual world making potential impact on their customers and giving rise to an entirely new online marketplace called iCommerce.

As a result of an increase in the number of digital-first consumers who have bought NFTs (Non-Fungible Tokens), major CPG brands find this as a potential opportunity to build a foothold in the virtual landscape. It, in turn, helps the brand create its presence among customers present anywhere in the world. Moreover, it makes it more interactive and engaging compared to the present marketing ways. Pepsi is the latest brand to enter the NFT space, with the Pepsi Mic Drop collection distributing 1,893 unique tokens, which is expected to resonate with the year in which the giant brand was born.

METAVERSE USE CASES IN CPG

Digital Trade
Consumers can own, sell, transfer objects within the metaverse with NFT technology granting ownership of digital assets. According to Vogue Business, users who bought avatar-products from luxury brand Gucci, wore them five hours longer that other accessories.

Novel Experience
Companies are exploring interactive virtual experiences backed by augmented reality where users can use their mobile devices or other augmenting tools to explore products. Nike is one such player that plans to enter the metaverse with digital formats of their branded sneakers.

Gamification
Offering a gamified challenge is one way to keep consumers engaged and enticed with brands. This includes offering simulated content with playful characters that represent the brand, such that consumers can explore the virtual world of the brand. Louis The Game, is one such example of how luxury brand Louis Vuitton is foraying into the metaverse.

Challenges

The future of the metaverse is promising, but it brings its own set of challenges. As the technology is evolving, businesses will have to adjust to new models and across various platforms to operate in the metaverse ecosystem. Moreover, the technology will require an immersive 3D internet, which could become an obstacle to the success of metaverse. As the virtual world reality is all set to create a borderless world with umpteen opportunities, it is important to stay aware of its challenges too.

- For an exceptional immersive internet experience, VR/AR devices will be a must, which at present are not affordable or portable. It can pose a challenge for the widespread adoption of metaverse. Moreover, the quality and performance of such devices will also matter to achieve the best experience.

- Identity theft is another concern because there is a possibility of mimicking avatars if no authentication/identity verification methods like retina scan, facial recognition, or voice recognition are introduced.

- Data privacy and security of individuals in the virtual world are of utmost importance and new security strategies need to be fabricated to ensure the protection of personal information.

- To create an online marketplace in the metaverse, the transactions need to be done in cryptocurrencies and it is critical to ensure transaction security to mitigate the risk of frauds or thefts.

- Proper law and jurisdiction need to be enforced to make the online marketplace in metaverse a safer place for users from any part of the world.

Pactera EDGE Stepping Up in Metaverse

As metaverse emerges as the next digital revolution, most of the industries want to enter the virtual space to reach a larger audience and promote customer experience to gain brand loyalties. As a global IT services provider, Pactera EDGE envisions collaborating with promising partners to create unique solutions in metaverse, tailored to industrial needs. As Pactera EDGE predominantly caters to the needs of the retail, CPG, and manufacturing sector, we look forward to serving our clients with next-generation solutions and experiences in the virtual world. To speak with one of our Metaverse experts, contact us.

Authored by Dinesh Chandrasekar, Chief Strategy Officer at Pactera EDGE.

References

1. https://www.emergenresearch.com/industry-report/metaverse-market

2. What Is a Metaverse? (gartner.com)

3. The Next Inflection Point: More Than 100 Million Consumers Are Shopping with AR | Snapchat for Business

4. Should retailers be investing in the metaverse? | Retail Dive

5. NHS staff are given some of the best training in the world thanks to technology (microsoft.com)

6. Virtual Reality Surgical Planning — ImmersiveTouch®

7. https://www.iotforall.com/impact-of-the-metaverse-on-manufacturing

8. https://medium.com/building-the-metaverse/the-metaverse-value-chain-afcf9e09e3a7

9. Metaverse_A_Guide_to_the_Next_Gen_Internet_1647078255-1.pdf (juliancastiblanco.com)

10. 7 Consumer Brands Reinventing Marketing in the Metaverse (thedigitalspeaker.com)

11. Revolutionizing Manufacturing Industry in Omniverse | NVIDIA

12. NVIDIA Isaac Sim | NVIDIA Developer

13. BMW's Virtual Factory Uses AI to Hone the Assembly Line | WIRED

14. 3ds Max | 3D Modelling, Animation & Rendering Software | Autodesk

15. Hyundai Meta-Factory (autocarpro.in)

16. https://www.forbes.com/sites/forbestechcouncil/2022/01/19/how-will-the-metaverse-impact-businesses-in-the-consumer-goods-sector/?sh=716ae3f2f2ae

17. https://www.thedigitalspeaker.com/7-consumer-brands-reinventing-marketing-in-the-metaverse/

18. Draup Report: Web 3.0 & metaverse - The NEXT BIG OPPORTUNITY