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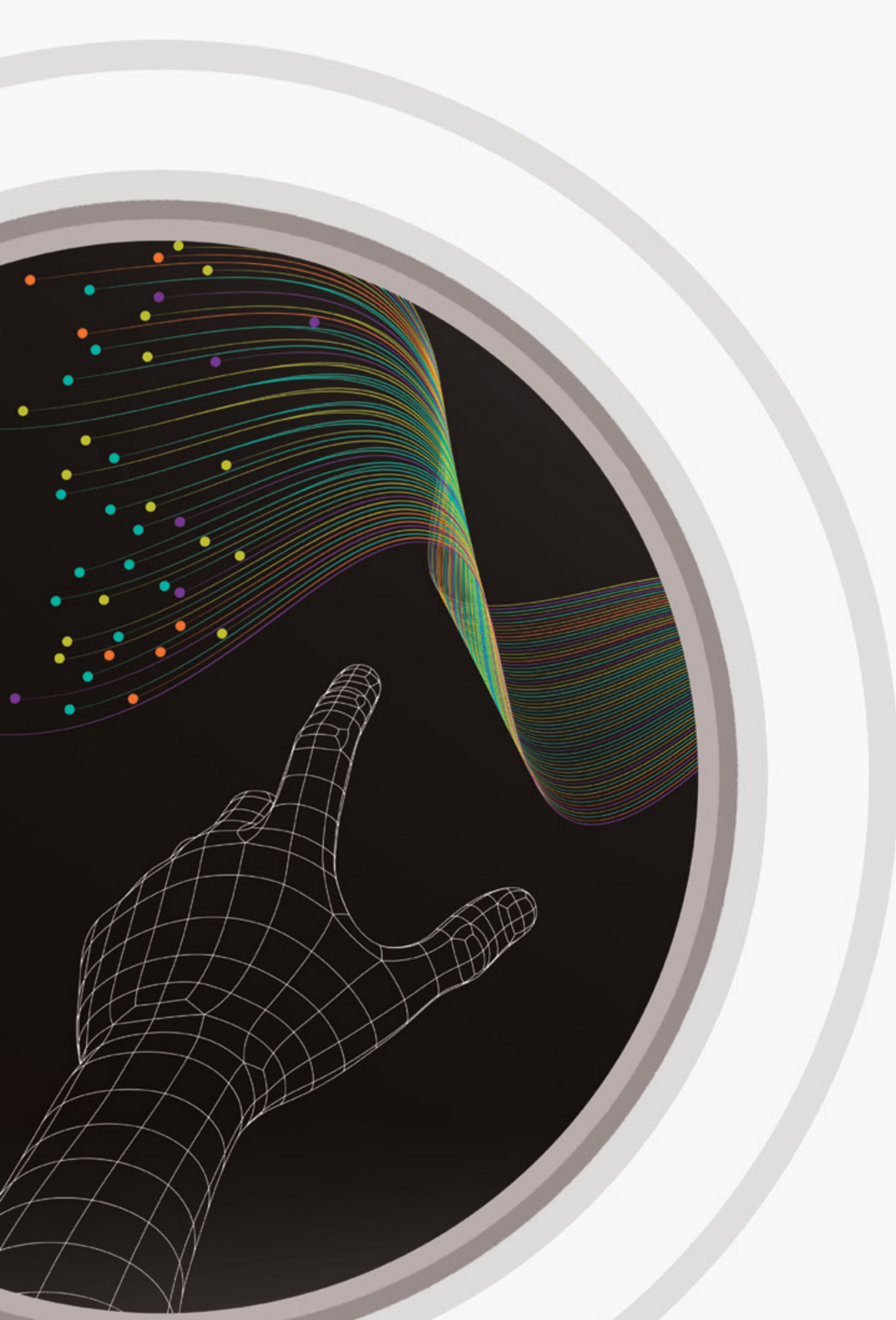
Metaverse: The hype, possibilities, and beyond

December 2022



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Foreword

As the world evolves to a new awakening with all things virtual, there are more possibilities in the 'Metaverse' world.

According to headline findings, investment projections, announcements by prominent brands, and possibilities through Metaverse, conversations on this topic have expanded beyond virtual games/e-sports and entered our daily business requirements. At Deloitte India, we are seeing an uptick in client interest across sectors to explore value creation possibilities for stakeholders using Metaverse. This interest is apart from the currently prevalent B2C use cases and moves into the realm of action-oriented B2B use cases.

Metaverse is a confluence of technologies that aims to create unparalleled virtual and immersive experiences for users. For decades, several technologies constituting Metaverse have existed in isolation or in other combinations. Many initiatives by popular brands across the world have indicated the use of Metaverse in routine business operations. However, its possibilities and limitations, reasons for the recent hype, underlying growth drivers, challenges, and the possible future of the immersive ecosystem is yet to be completely understood.

Our report aims to answer key questions related to Metaverse and its possibilities. It explores the ground underneath the virtual world by shedding light on key enablers – technology and economic infrastructure of Metaverse, with the current challenges and future possibilities of Metaverse adoption. In addition, the report defines enterprise Metaverse, which can be a critical lever to address some existing challenges around policy, security, and privacy in the prevailing Metaverse ecosystems.

Several studies and industry point of view focuses on the customer/citizen-facing aspect of Metaverse. However, this report goes beyond such realms and aims to illustrate Metaverse possibilities in core business operations through enterprise Metaverse. In addition, the report suggests an adoption framework articulating answers to crucial questions that enable decision makers to arrive at an optimal conclusion about the adoption and use of this technology.

It would be interesting to see if this new technology will help solve real business, governance, and societal challenges. In addition, tech must be aligned to the policy landscape to make it widely scalable for adoption.

The future of technology will paint a new beginning with Metaverse, in combination with other technologies, thereby addressing the needs of Gen-Z and Gen-Alpha.

The true test will be to see how the shift in the digital transaction economy, such as the introduction of the e-Retail rupee in the Indian financial systems, affects the Metaverse experience in the phygital domain.

Sreeram Ananthasayanam
Partner, Consulting
Deloitte India

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Romal Shetty
President, Consulting
Deloitte India

Metaverse is fast catching the imagination of enterprises. The pace of evolution of use cases is aligned with the advances in underlying technology and digital infrastructure.

Newer business models on Metaverse to cater to the needs of digital natives will emerge, and, businesses should adapt and embrace these with a strategic intent.

Ashvin Vellody
Partner, Consulting
Deloitte India

The next wave of digital transformation is a set of technologies that define customer experience and connectivity to enable decentralisation. The Metaverse provides one such path forward where AR-VR, other OEMs, and device independent technologies aim to create a virtual world full of rich experiences.

Businesses will continue to adopt these technologies if it enables their vision to provide the best customer experience at a reasonable cost.

Jehil Thakkar
Partner and Media and Entertainment sector leader
Deloitte India

The metaverse will serve as a key enabler for the Indian media and entertainment sector opening newer avenues for India's vast talent pool in engineering, graphics, video, and animation. Together with a new digital vision of the GOI and new applications made possible through 5G, India's talent pool has the potential to make the country a key centre for metaverse-related technologies and innovation.

Executive summary

Technology is getting affordable, scalable, and trustable, and transforming business models and consumer expectations. Robust and scalable digital infrastructure and applications are enabling personalisation for a generation that prefers differentiated experiences. In addition, alternative technologies (Decentralized Autonomous Organizations [DAO], Decentralized finance [DeFi], Non-fungible token [NFTs]) are disrupting digital ecosystems by disintermediating intermediaries and decentralising ownership. Technology is building decentralised trust to make processes and transactions efficient, transparent, and seamless.

One such technology is Metaverse, which refers to an immersive, interactive, and live virtual environment, distinguished by its ability to transport the real-world experience into a virtual world. In this world, people across locations can interact live and work in real time. This is supported by a digital economic infrastructure powered by virtual digital assets. Metaverse is a confluence of technologies that aims to integrate businesses in innovative ways, enhances operational efficiencies and transactions, and provides an experience par excellence. It creates new market avenues, which are futuristic, yet revolutionary. The exponential nature of technology growth is only going to make it more feasible and affordable. Several enterprises and customers are foraying into this space that is redefining business models and customer expectations.

In this report, we aim to understand how businesses engage and interact with each other in a Business-to-Business (B2B) and Business-to-Consumer (B2C) ecosystem. We believe that adopting Metaverse is possible through the merging together of the physical and digital worlds (phygital). It will help businesses reduce costs, collaborate in real time, overcome logistics issues, provide enhanced opportunities and productivity, improve feedback processes, and offer possibilities for product and service augmentations. All these will not only generate revenue but may tilt the competitive advantages in favour of those ahead in the adoption curve. It will enable businesses to take a step towards introducing environment-friendly policies and sustainability.

Metaverse is a 'virtual world' with real people in digital avatars, who come together to interact and transact. Hence, the boundaries for work and play are blurred. Such a concept is hard to understand, monitor, and regulate because of the undefined rules and unimaginable complexities that may exist.

In the following chapters, we begin with our understanding of Metaverse as the world is still exploring its confluence in the Phygital space. We also debate on the possibilities of different types of Metaverse architectures and their potential across enterprises. Subsequently, we discuss the challenges that will likely arise while implementing the Metaverse ecosystem and the possible measures to sustain business in a dynamic marketplace.

There is also a section that provides an overview of the applications of Metaverse and its potential across sectors. We will discuss the art of possibilities for enterprise Metaverse and how it will help enterprises scale and diversify their businesses and opportunities by using the myriad elements of the Metaverse economy. While most of the current use cases on Metaverse primarily relate to the B2C segment, this report also explains the potential enterprise-grade use cases that address the B2B segment.

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Possibilities through Metaverse - A Preview

Scenario 1 – Health care

Consider a situation where a **health care centre** is in the country's suburbs, with a population of 50,000. Lack of suitable resources, such as round-the-clock availability of doctors, basic health care facilities makes the centre incapable of providing round-the-clock emergency services. It is also difficult to quickly transport critical patients for emergency services.

What if required support and expertise from medical experts across the country could be instantly available? How about, it can enable with life-saving procedures otherwise unavailable on-premises in that health care facility?

(Please refer to page 24 for further solutions)

Scenario 2 – Fashion retail

Consider a situation where a **fashion designer** from Northern India wants to tap into Gen-Z of the South with their latest designs. Currently, the designer only works with five tailors and two craftsmen in the Northern region, who do not have the required skills and capabilities to create designs for the target customers.

What if the designer could collaborate with local tailors and traditional craftsmen of the southern region in real time and create a premium product, exclusive for Gen-Z?

(Please refer to page 28 for further solutions)

Scenario 3–Travel and tourism

Consider a situation where a leading **tourism service provider** is competing with five other travel companies that offer similar services.

Due to the pandemic, there has been a dynamic shift in the way customers want to experience tourism, and to be ahead in the game the travel service provider must change its existing business model.

What if the travel company could provide its customers the experience of travelling to a location of their choice from the comfort of their homes? What if, it could enrich its customer experience with an add-on shopping and adventure feature by collaborating with top brands and tourist landmarks?

(Please refer to page 27 for further solutions)

Above is just a set of possibilities that the new world of metaverse opens up for innovators and help them connect with businesses and consumers in newer ways, hitherto unimaginable. For more sets of such solutions please refer to 'Possibilities through Metaverse', section of the report (Page 18-31).

Metaverse: Beyond fiction

For decades, science fiction movies and novels have dabbled with alternative realities to captivate their readers' and viewers' imagination, showcasing possibilities through the ultimate confluence of the physical and digital worlds. They have shown how human digital avatars interact with each other in real time.

The exponential evolution of emerging technologies is rapidly bridging yesterday's fiction with tomorrow's facts by means of today's realities. Users are about to find their presence, both in the real and digital space and experience the virtual world through an immersive ecosystem.

Metaverse is a combination of 'meta' meaning 'beyond' (in Greek) and 'verse' implying 'universe'. It is a confluence of technologies to create immersive simulated digital universes that generate a first-person experience for the user, which can also be shared by groups of simultaneous users, with a strong sense of mutual presence. In other words, the Metaverse ecosystem is a set of unified, 3D virtual spaces where people situated anywhere in real time can live, interact, and work in an immersive way, wherein an underlying economy is powered through virtual digital assets.

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Economic catalyst: Web 3.0 and creator-led economy

The recent uptick in the adoption of emerging technologies is due to several factors. One of the key drivers is the economic possibilities within Metaverse. It is primarily driven by Web 3.0's capabilities to accelerate digital transformation and creator's economy.

Web 3.0 facilitates immutable ownership, i.e., digital record of ownership that cannot be tampered with, seamless transactions, and inter-operability of digital assets. This allows creators to create and own content digitally within a secured framework of 'decentralised' (distribution of ownership) ecosystem (platforms and apps). Creators can earn revenue from their own creations across decentralised platforms that provide an alternative pathway to monetise their content.

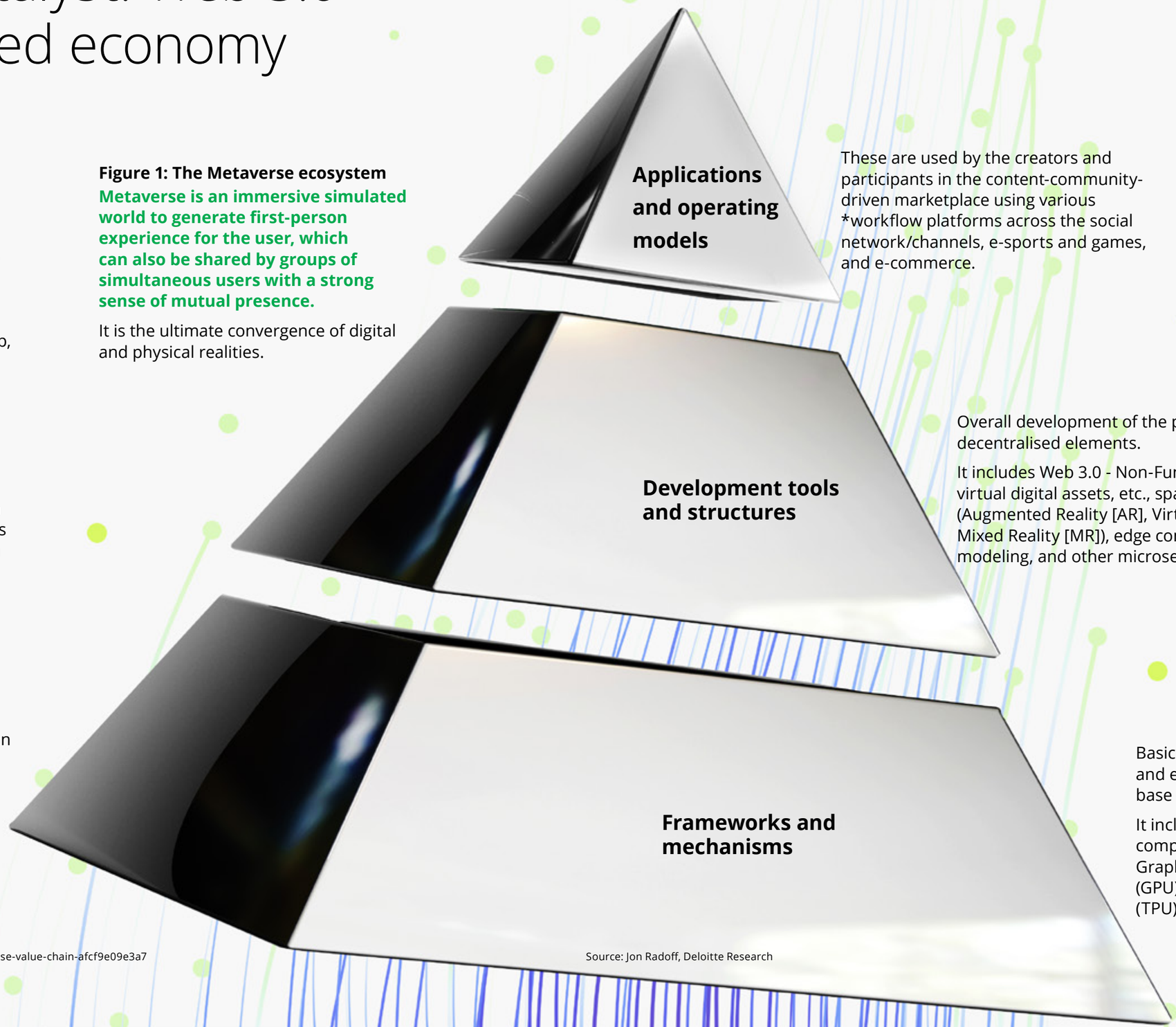
Further, the basic tenets of Metaverse (immersive experiences) have been in operation in the gaming industry for almost two decades.

Technically, the Metaverse can be broken down into three layers that comprise multiple elements (Figure 1).[1]

Figure 1: The Metaverse ecosystem

Metaverse is an immersive simulated world to generate first-person experience for the user, which can also be shared by groups of simultaneous users with a strong sense of mutual presence.

It is the ultimate convergence of digital and physical realities.



These are used by the creators and participants in the content-community-driven marketplace using various *workflow platforms across the social network/channels, e-sports and games, and e-commerce.

Overall development of the platform includes decentralised elements.

It includes Web 3.0 - Non-Fungible Token (NFT), virtual digital assets, etc., spatial computing (Augmented Reality [AR], Virtual Reality [VR], Mixed Reality [MR]), edge computing, 3D modeling, and other microservice.

Basic technical infrastructure and equipment to build a base of the ecosystem.

It includes 5G, Wi-Fi 6, cloud computing, electronic chips, Graphical Processing Unit (GPU), Tensor Processing Unit (TPU), and smart wearables.

Source: Jon Radoff, Deloitte Research

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

Behind the hype

Headline projection on growth and adoption of Metaverse have resulted in raised engagement levels driven primarily by two factors:

1. Changing consumer base and the associated change in consumer behaviour
2. Early adoption of Metaverse by enterprises and use cases on Metaverse resulting in tangible business gains

Consumer base and preferences

Gen-Z has become the largest generation around the world surpassing the millennials.

It is estimated that by 2030, Gen-Z will constitute 30 percent of the workforce and drive aggregate consumption through their independent disposable income.[2] This tectonic shift in the composition of consumer demography will necessitate a change in various aspects of doing business. Brands and businesses must consider Gen-Z's preferences to tap into the opportunity.

From shopping to education, from work to leisure, Gen-Z's lives are inextricably tied to the digital realm.

Popularly dubbed as the digital natives/ the dot com kids, the gen-z followed by gen-alpha has grown up with social and interactive media and spends considerable time consuming content online.

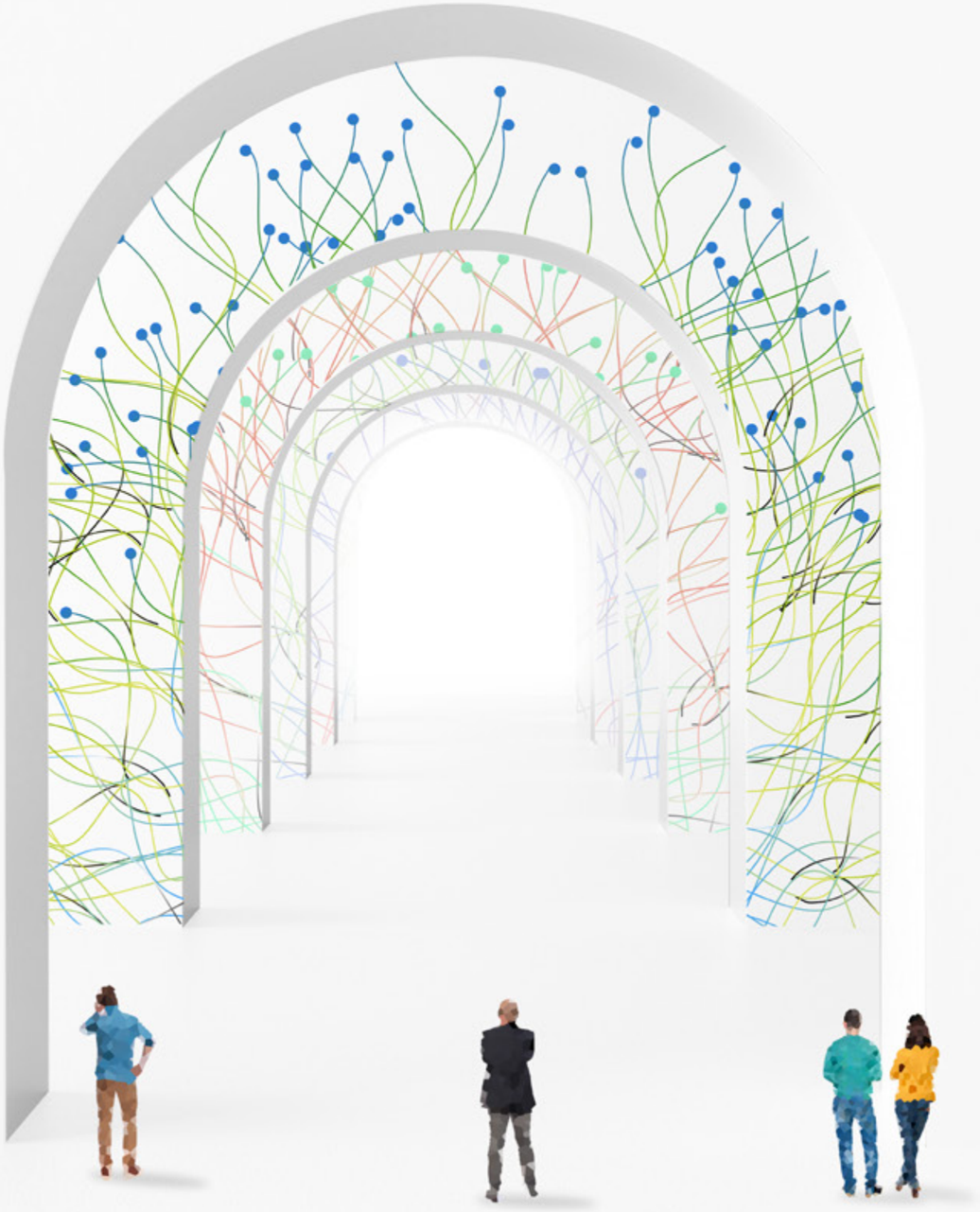
The propensity of this consumer segment to consume digital goods and services will allow enterprises to creatively use Metaverse to drive the demand for new products and immersive and elevated experiences.

Experience of early adopters

While large-scale enterprise-level adoption of Metaverse is yet to materialise, results from early adopters are fuelling market sentiments favourably towards Metaverse.

In post-pandemic era, businesses are re-imagining their operations for continuity and growth. From entertainment to fashion, several enterprises rolled out use cases on Metaverse and its components. New forms of customer experiences and engagements, remote working collaborations, etc., are some areas where enterprises have showcased tangible business benefits.

Major IT and ITES companies announced extensive initiatives towards investing in Metaverse. Seeing the possibilities for transforming governance through Metaverse and bolstering the ecosystem, many governments across the world have also announced their intent to use Metaverse in sustaining a favourable climate for technology.



2. https://finance.yahoo.com/news/gen-z-workers-30-workforce-123000932.html#:~:text=Gen%20Z%20workers%20will%20be,they%20want%20from%20their%20employers

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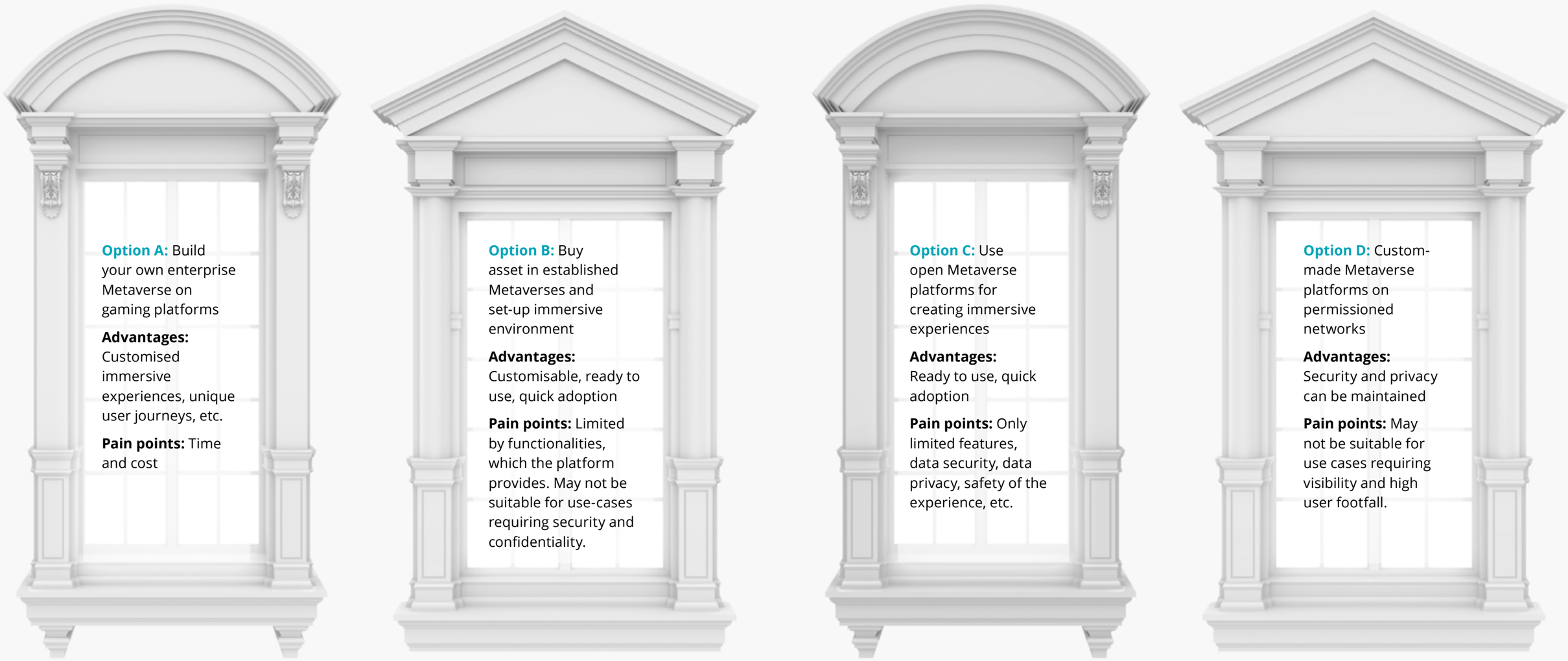
Implementation models adopted by early adopters

Brands are strategically adopting multiple approaches to provide a customised immersive experience to users and tap into an early-mover advantage in the marketplace. Metaverse provides creative freedom for brands to use and secure meaningful experiences for their stakeholders. Some of the models used by early adopters are listed in Figure 2.

Figure 2: Metaverse Implementation Models

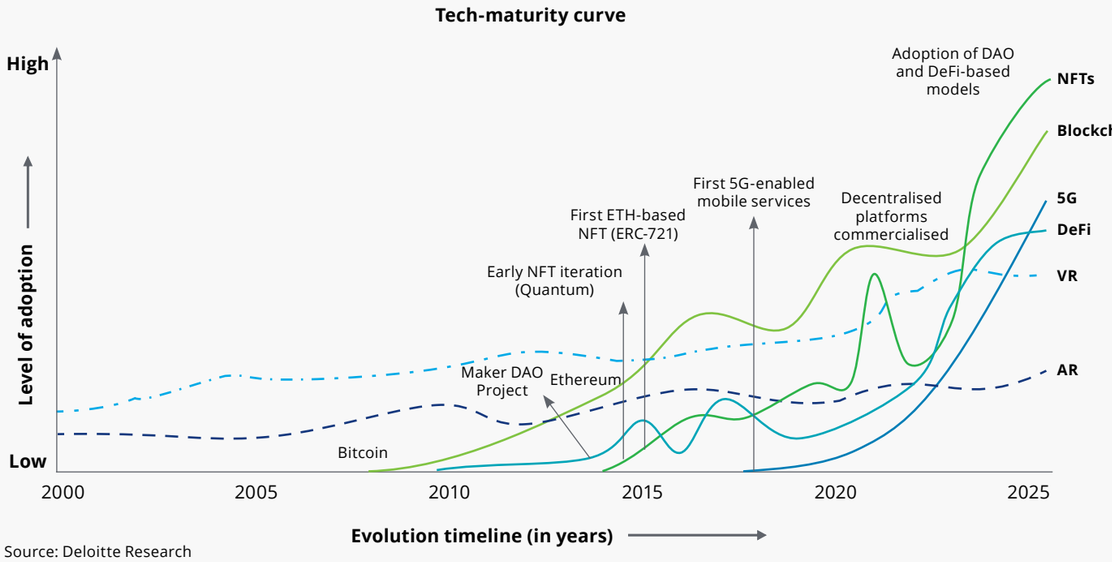


Source: Deloitte Research

Beyond the hype

Growth in the Metaverse adoption in India and elsewhere depends on the economic and technological barriers to the underlying technologies. The scale of adoption also will be driven by the cost of compatible devices (VR, headsets, smart wearables) and the ability to develop technical skills and readiness (Figure 3).

Figure 3: Metaverse - Adoption of technologies



Source: Deloitte Research

In other words, the evolution of the Metaverse is favourably co-related with the progress of the network platforms, VR hardware, network infrastructure, etc. At any given time, each of these will be at different stages of maturity; some might be evolving, a few might be maturing, and the rest might be still at a conceptual or primitive stage.

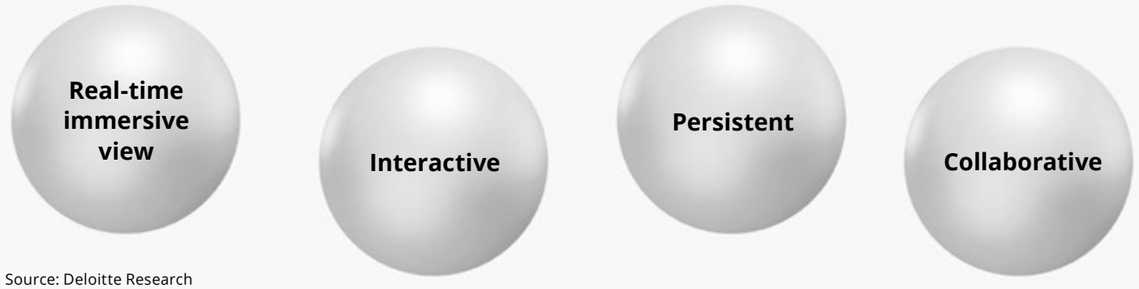
Applicability framework of Metaverse

The determinants for adoption of Metaverse will be unique to every industry and use case. Hence, to service the evolving consumer base and consumption patterns, technical feasibility, industry-defining precedents, and regulatory approaches could be the primary drivers of adoption. The adoption levels will vary across sectors with use cases satiating the applicability framework (Figure 4).

With immersive experience as its core offering, the media, entertainment, and gaming industry will lead the adoption journey. Industries, such as fashion, consumer durables, real estate, retail and e-commerce, banking, health care, manufacturing may take a phased approach in adopting certain components of Metaverse and gradually expand the offerings. Once a stable immersive ecosystem is established to achieve scale and cost-effectiveness and technologies mature in the future, the definition of Metaverse will evolve and include the desired attributes per the above framework.

Figure 4: Metaverse applicability framework

Defining attributes of business function	Mandatory	Desired
The experience should be virtual.	Yes	NA
The experience should be personalised and immersive.	Yes	NA
The experience should be interactive.	Yes	NA
The experience should be in real time.	No	Yes
The experience should be available on-demand.	No	Yes
Financial transactions should be performed.	No	Yes



Source: Deloitte Research

Sneak peek into the future: Metaverse for enterprises

Advocates of free Internet prefer that Metaverse is built in an open and decentralised manner on the principles of Web 3.0, powered by blockchain technology that ensures permissionless access and decentralised governance of the platform.[3] This enables developers and users to own their creations and trade on decentralised applications. Further, there will be greater opportunities for monetisation of digital assets in open Metaverse.

However, this may not be the only approach through which Metaverse is built or adopted in the future. Enterprises' preference to own and monetise digital assets, and the inherent concerns around customer retention and safety in an immersive world may direct building a 'closed' Metaverse (Figure 5).

[3] https://www.blockchain-council.org/blockchain/know-everything-about-blockchain-metaverse-and-why-does-it-matter/

In a closed Metaverse, private organisations may own the platform offering service with limited access to authorised entry. Apart from mitigating platform switching, this may allow standards and protocols to be predefined by the owning entities, thereby allowing them to build robust business models around the platform.

Figure 5: Metaverse benchmarking - Open vs close*

	Open Metaverses	Enterprise/Private Metaverses
Infrastructure (Technological platform/architecture)	Common infrastructure	
Human interface (Hardware interface that enables user to experience the metaverse space)	Open access	Restricted access
Decentralisation (Distribution of ownership)	Decentralised ownership over public blockchain	Ownership over private blockchain
Spatial economy (Combines AR, VR, MR to bring the idea of a parallel 3D immersive space)	Open-source development	Customised enterprise approved development
Creator economy (Creator owns content digitally within a secured and decentralised ecosystem)	Open to all	Restricted
Discovery (Creators put relevant information out in front of the audience)	Open to all	Restricted
Experience (Offering immersive and real-time nature)	Open to all	Restricted

*Indicative: subject to evolving understanding

Source: Deloitte Research

Challenges and risks

The high cost of wearable hardware, such as ocular glasses, haptic suites, etc., limits the large-scale adoption. The ubiquitous availability of network infrastructure required to enable high-functioning Metaverses is an ongoing process. To that extent, the affordability of underlying technologies, which is a product of (a) market sentiment and (b) government policy will play a huge role in the widespread adoption of Metaverse.

Unlike mobile numbers and e-mail IDs, a robust identifier balancing the requirements of a holistic Metaverse experience and safety of individuals is yet to be developed. At present, it is quite easy to create digital avatars of individuals without their consent and impersonate them across multiple immersive worlds.

However, this opens up the possibility of severe reputational harm. Besides fraud and impersonations, harassments, assaults, bullying, and hate speech in the virtual world (for example games) are already serious challenges.[4] While the violation of physical space in real life is deterred by larger **social constructs and safety mechanisms,** they cannot be effectively transposed to the digital world. The anonymity built into platform compounds such challenges since violation of users' **trust and safety** cannot be completely investigated. The large-scale adoption of technology will inevitably depend on the ability of the platforms and communities/entities governing the platform to ensure a safe experience and **secure digital assets** for users. This might not be an easy task as even established Metaverse platforms have struggled internally to integrate safety features into their Metaverse services (Figure 6).

Building **robust security and threat monitoring** mechanisms into such platforms, prioritising cybersecurity assessment, developing threat intelligence and response capabilities, and bolstering security through threat identification and response competencies must be key focus areas for widely accepting and adopting the Metaverse technology.

4. https://www.nytimes.com/2021/12/30/technology/metaverse-harassment-assaults.html

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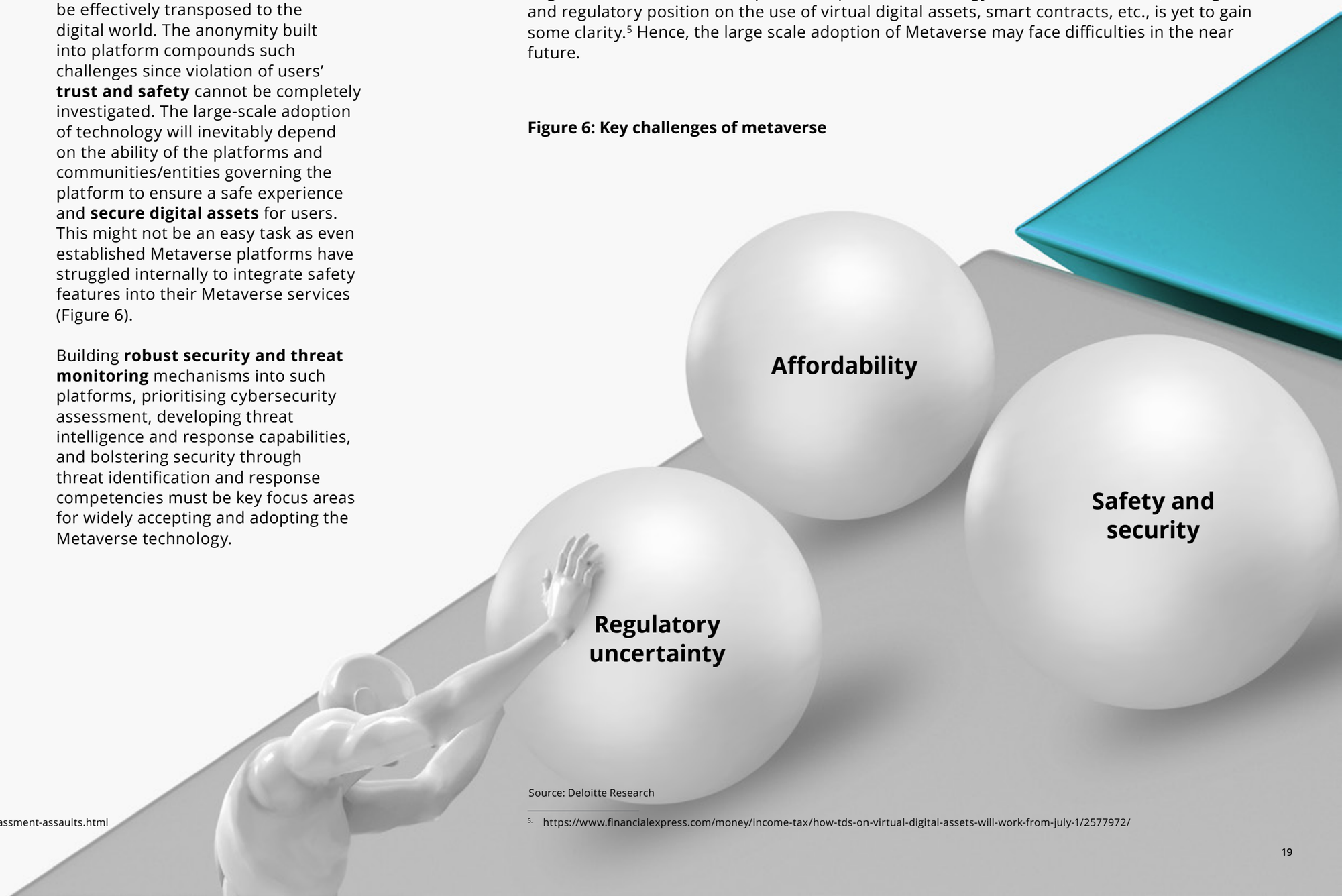
Metaverse has so far been driven by virtual digital assets and lack of compliance with Anti-money Laundering (AML)/ Know Your Customer (KYC) requirements, opening up the possibilities for nefarious activities. In addition, challenges around data thefts, payment frauds, etc, are emerging.

Regulations and laws can shape the adoption of technology. For instance, in India, the legal and regulatory position on the use of virtual digital assets, smart contracts, etc., is yet to gain some clarity.[5] Hence, the large scale adoption of Metaverse may face difficulties in the near future.

Figure 6: Key challenges of metaverse



Source: Deloitte Research

5. https://www.financialexpress.com/money/income-tax/how-tds-on-virtual-digital-assets-will-work-from-july-1/2577972/

Possibilities through Metaverse

The adoption of the Metaverse is booming with technological advancements to deliver genuinely immersive experiences. With time, it will offer a remarkable level of customisation and allow organisations to decide how they want to deliver messages and experiences through their offerings.

The framework is a product of analysis of recent developments and announcements by major brands mapped against current technology capabilities, business impact, target demography, legal and regulatory requirements (Figure 7).

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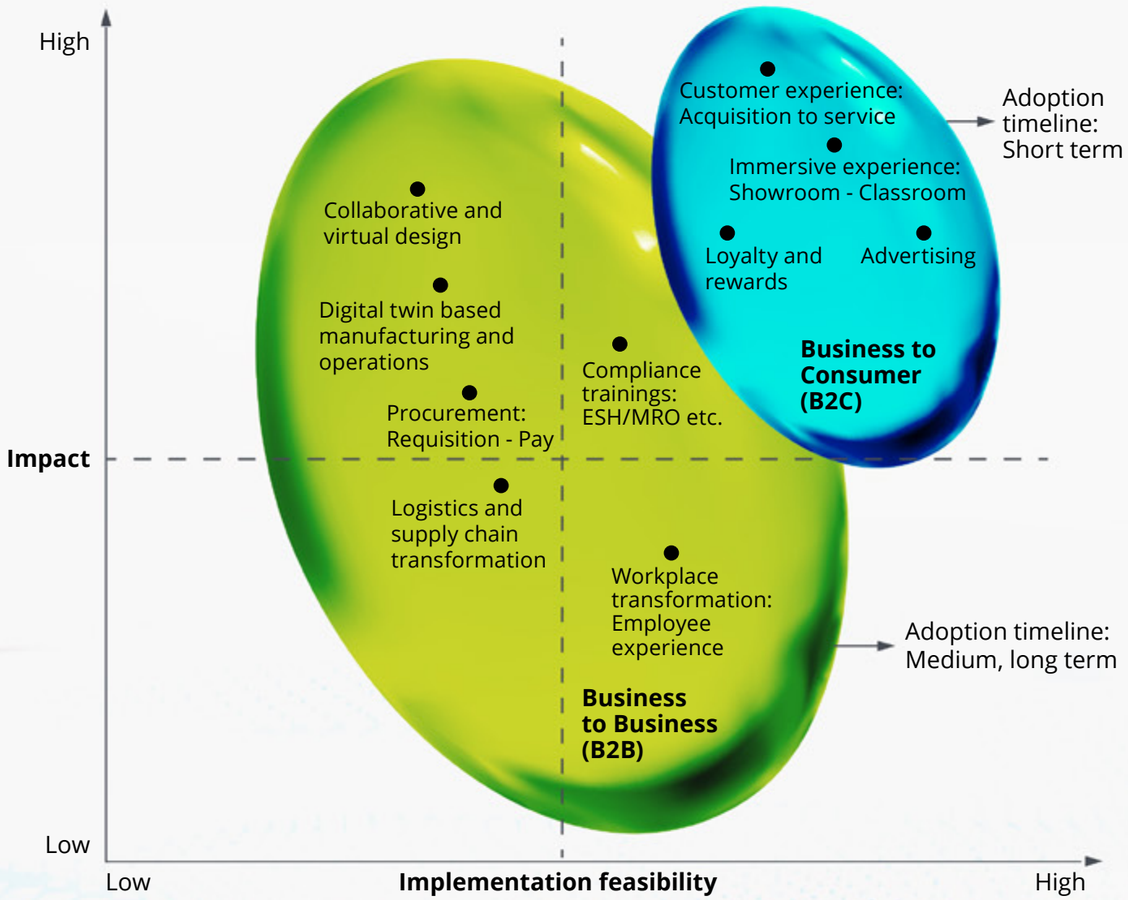
Figure 7: Metaverse Use Case Assessment Framework



Metaverse and trainings

Medical training centres located in tier-1 cities can collaborate with remotely located hospitals to enable their training modules in real time using immersive technology. Through metaverse, medical professionals can impart skills and knowledge base to local doctors and nurses without being physically present at the hospital.

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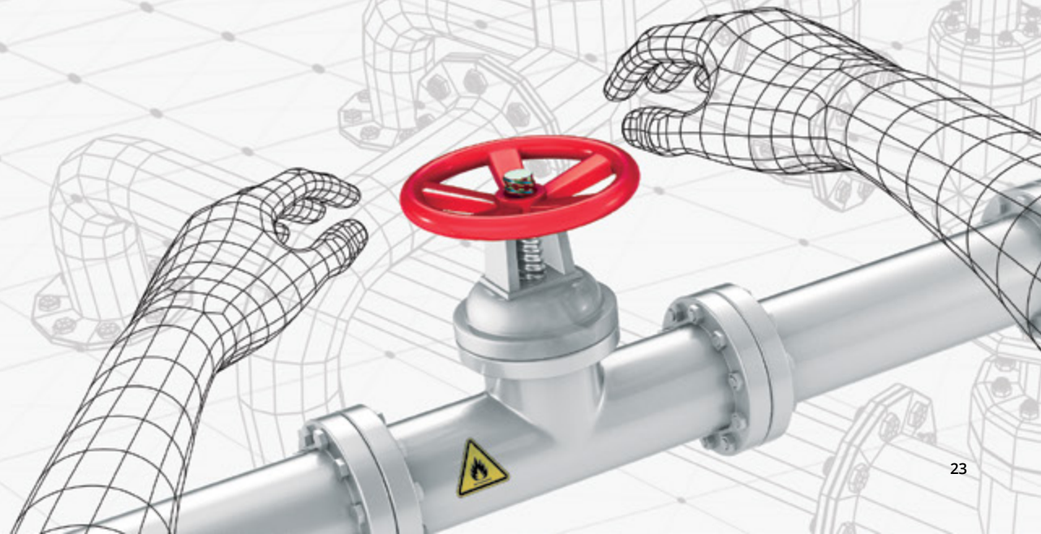
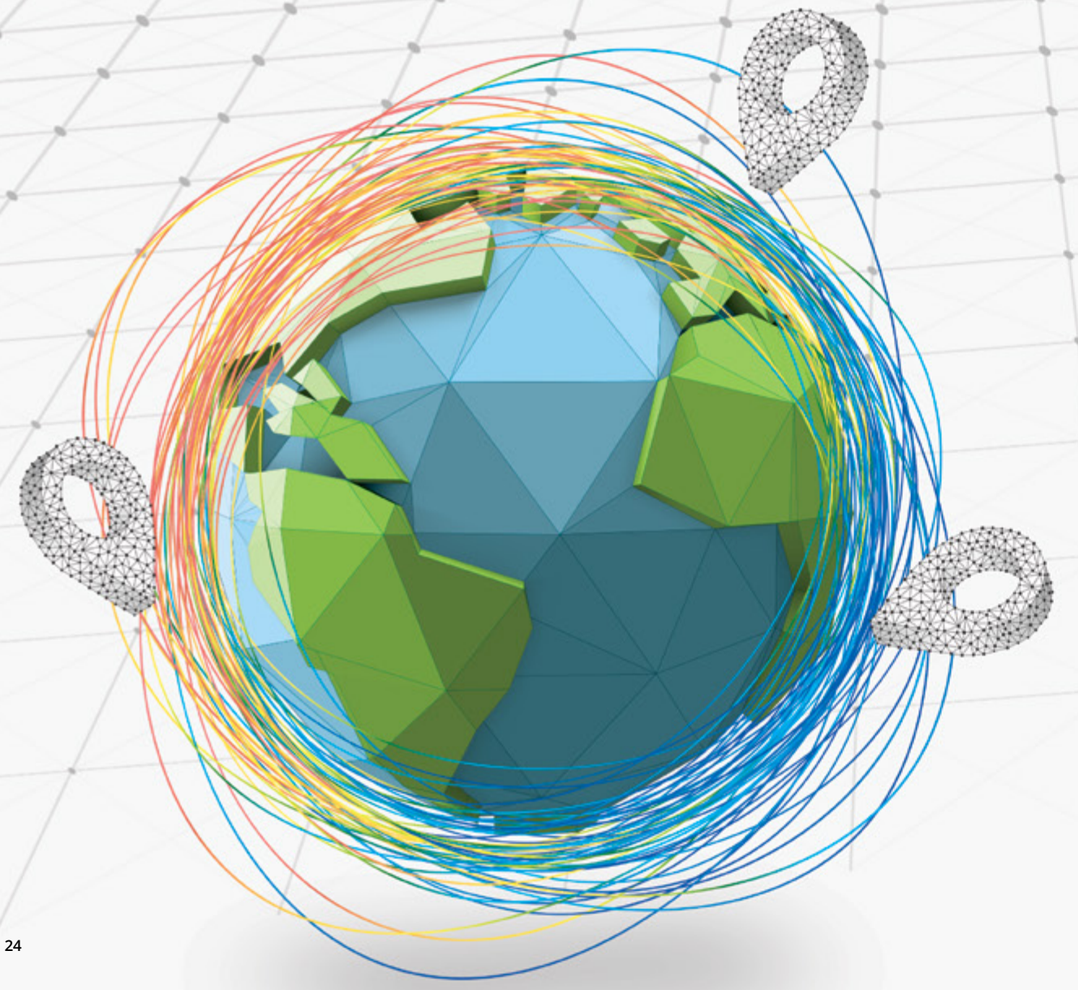
Legal, audit, and other statutory services have rigorous compliance programmes for all employees. Primarily driven through a combination of classroom and online learning modules, the compliance programmes often face challenges around fatigue and poor productivity of training sessions. With Metaverse, these trainings can be gamified to simulate real-world situations. Here the digital avatars of trainees react to various simulated situations whose outcomes reflect the choices made by the avatars.

Heavy industries from construction to oil and gas have statutory requirements to regularly re-skill their employees by means of environment, health, and safety trainings. Through course work and training sessions, the required intensity of real-world implications cannot be transferred effectively. With Metaverse, various plant and site scenarios can be simulated. A gamified approach, i.e., life/death of an avatar will be based on the decisions taken by the trainee/team of trainees. This can improve the training outcomes.



Metaverse and loyalty programmes

Tourism companies can offer B2B loyalty reward systems in their Metaverse ecosystem exclusively for their collaborating partners, such as e-commerce brands or hospitality businesses. Subscription-based loyalty or reward programmes will enable special immersive offerings (virtual events and tours) or even trading virtual digital assets for their collaborating partners and brands. It can be a unique way of creating exclusive long-term relationships for the tourism companies.



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In **media and entertainment**, NFTs are already used as loyalty instruments for delivering privileged experiences. For instance, exclusive engagement with actors can be driven in an immersive virtual environment more efficiently without the hassles of real-world events. Production houses and content creators can plan for an exclusive Metaverse release of content designed to be enjoyed by NFT holders.

In **fashion and retail**, the most common consumer loyalty programmes have been related to transferring rewards digitally, for physical transactions. With Metaverse and NFTs the model can turn-around with possession of digital versions of physical goods leading to concessions and discounts in physical transactions. In addition, the digital versions can also act as instruments for providing privileged experiences in the immersive environment.

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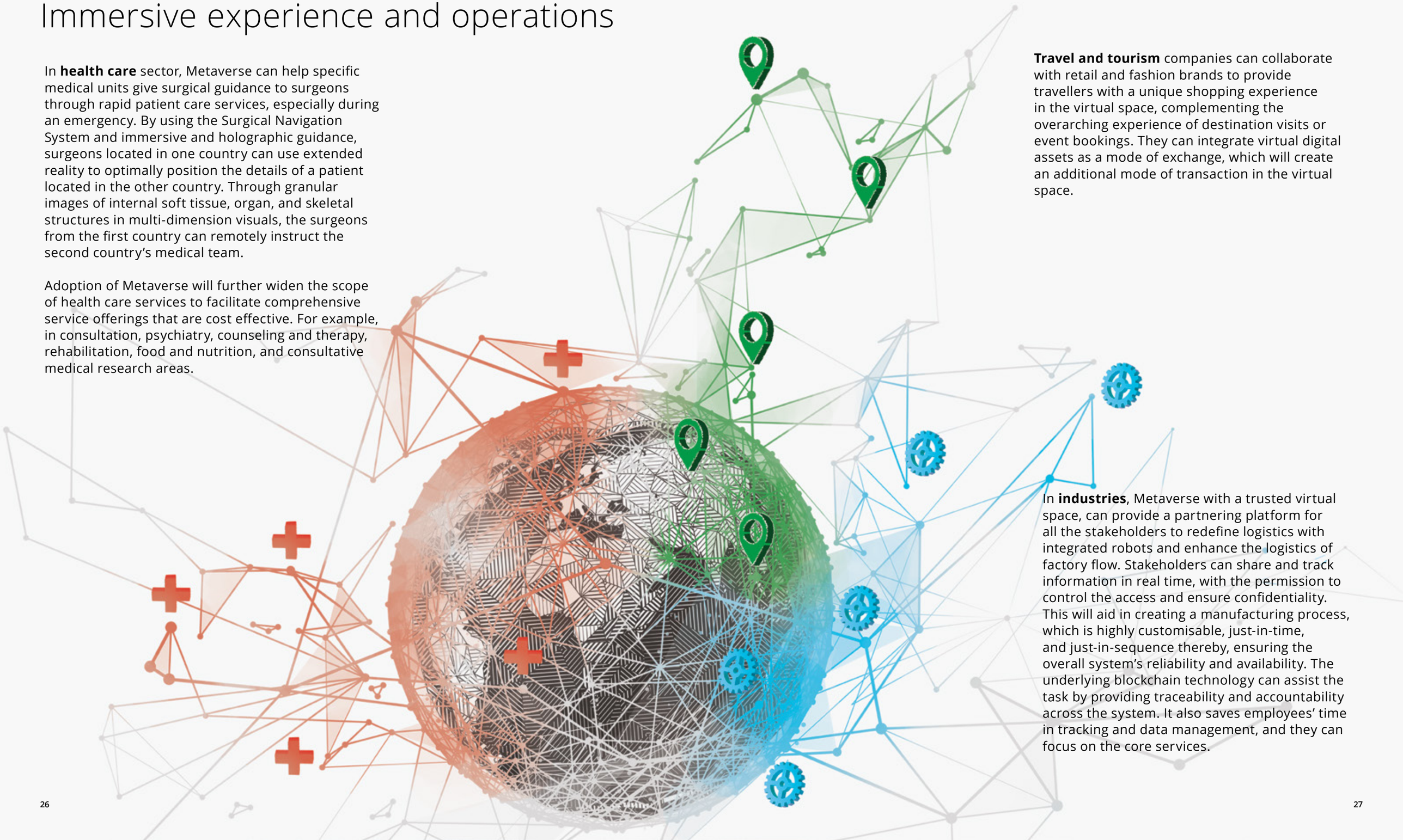
Immersive experience and operations

In **health care** sector, Metaverse can help specific medical units give surgical guidance to surgeons through rapid patient care services, especially during an emergency. By using the Surgical Navigation System and immersive and holographic guidance, surgeons located in one country can use extended reality to optimally position the details of a patient located in the other country. Through granular images of internal soft tissue, organ, and skeletal structures in multi-dimension visuals, the surgeons from the first country can remotely instruct the second country's medical team.

Adoption of Metaverse will further widen the scope of health care services to facilitate comprehensive service offerings that are cost effective. For example, in consultation, psychiatry, counseling and therapy, rehabilitation, food and nutrition, and consultative medical research areas.



Travel and tourism companies can collaborate with retail and fashion brands to provide travellers with a unique shopping experience in the virtual space, complementing the overarching experience of destination visits or event bookings. They can integrate virtual digital assets as a mode of exchange, which will create an additional mode of transaction in the virtual space.

In **industries**, Metaverse with a trusted virtual space, can provide a partnering platform for all the stakeholders to redefine logistics with integrated robots and enhance the logistics of factory flow. Stakeholders can share and track information in real time, with the permission to control the access and ensure confidentiality. This will aid in creating a manufacturing process, which is highly customisable, just-in-time, and just-in-sequence thereby, ensuring the overall system's reliability and availability. The underlying blockchain technology can assist the task by providing traceability and accountability across the system. It also saves employees' time in tracking and data management, and they can focus on the core services.

Metaverse and customer experience

A **beauty and care** product company can use the Metaverse ecosystem and connect with retail outlets to get a real-time overview of the racks for placing their products in a prime location. The virtual avatars of the company's marketing employees can walk around the virtual layout of the shop floor, observe the customer movement patterns, and gather data about hits and misses. This will help the brand in achieving a higher engagement rate. At the same time, the retailer can use the platform to engage with various potential brands and provide them premium placement services using a digital twin of their showroom.

Tourist footfall continues to remain the primary revenue generator for tourist attractions, such as archeological monuments, museums, natural heritage sites. Degradation of monuments and ecological compromises are inevitable externalities to increase the human footprint.

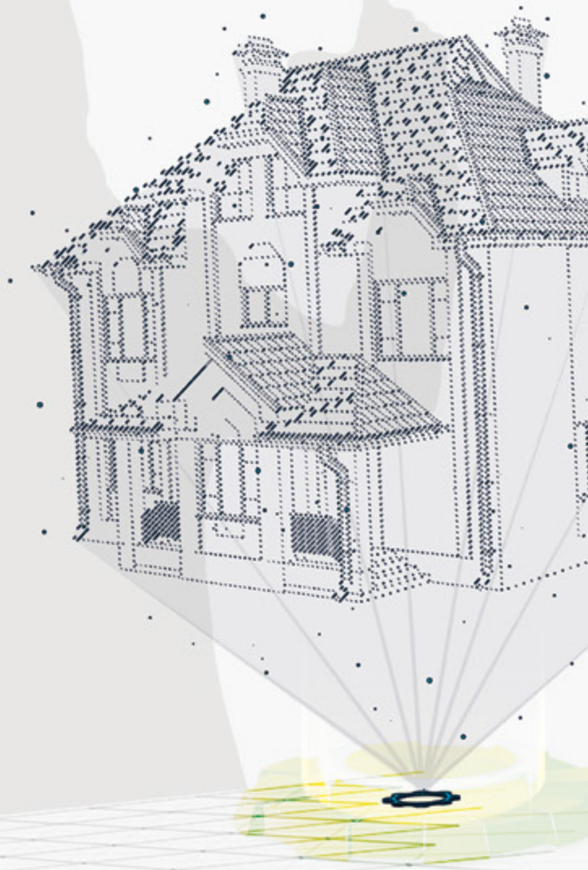
Metaverses curated to deliver specific user experience in shopping, entertainment space is already gaining traction. By using spatial virtualisations and mixed realities, the governments can make provisions for customised Metaverses to provide immersive experience of high-density tourist destination.

From **public services to consumer durables**, ensuring timely grievance redressal and after service is a major pain point of customer success management. Immersive platforms of brands and governments can act as a channel for proactive customer/citizen grievance reporting platform, which when integrated with the current workflows for support and services can lead to action in real world. In addition, through demonstration on a digital twin installation, replacement and service can be efficiently taught to consumers and bring down the total ownership cost.

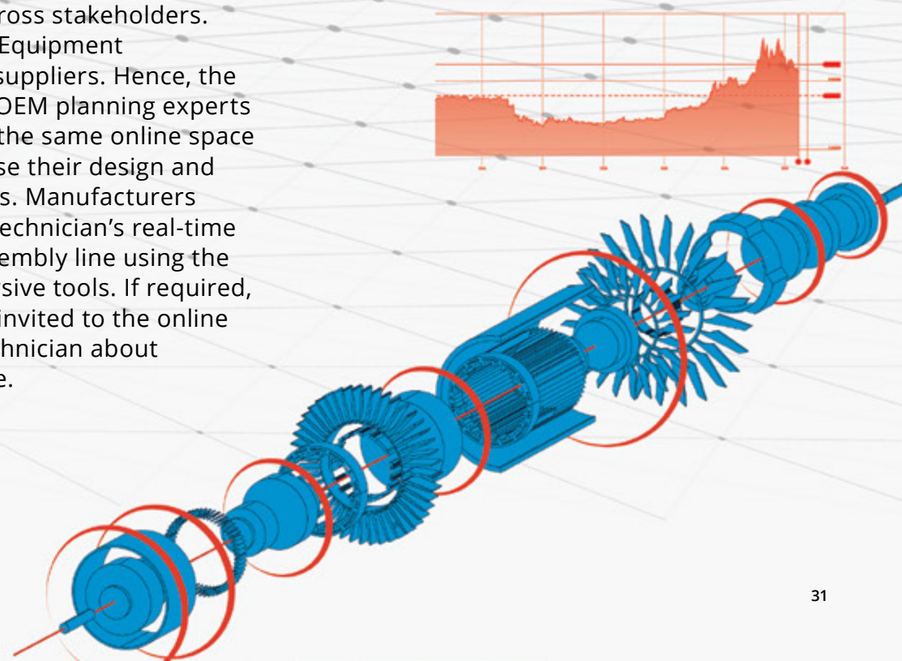
Metaverse and collaborative designs

In the **fashion industry**, designers can use the Metaverse platforms and instruct dressmakers in real time on the granularity of the design, texture, and materials (using a demo in an immersive and real-time environment). This increases a designer's flexibility to work with the dressmakers and brands of their choice and get real-time feedback about the apparel getting designed.

In **real-estate**, the digital twin technology can enable builders to interact with other stakeholders (the real-estate agencies, interior designers, e-commerce players, and even customers) in their virtual avatar. Sharing the same space within the 3D holographic virtual layout of the physical house, builders and agents can discuss the design and the plan with the interior designer in real time and, hence work towards meeting customer expectations. Interior designers can collaborate with agencies to exhibit their democratic design in high-definition, interactive virtual showrooms using immersive capabilities directly to their customers. The customer specifications can be discussed and clarified in real time with all stakeholders involved, thereby, improving the overall process efficiency in designing a 'dream home' for the customer.

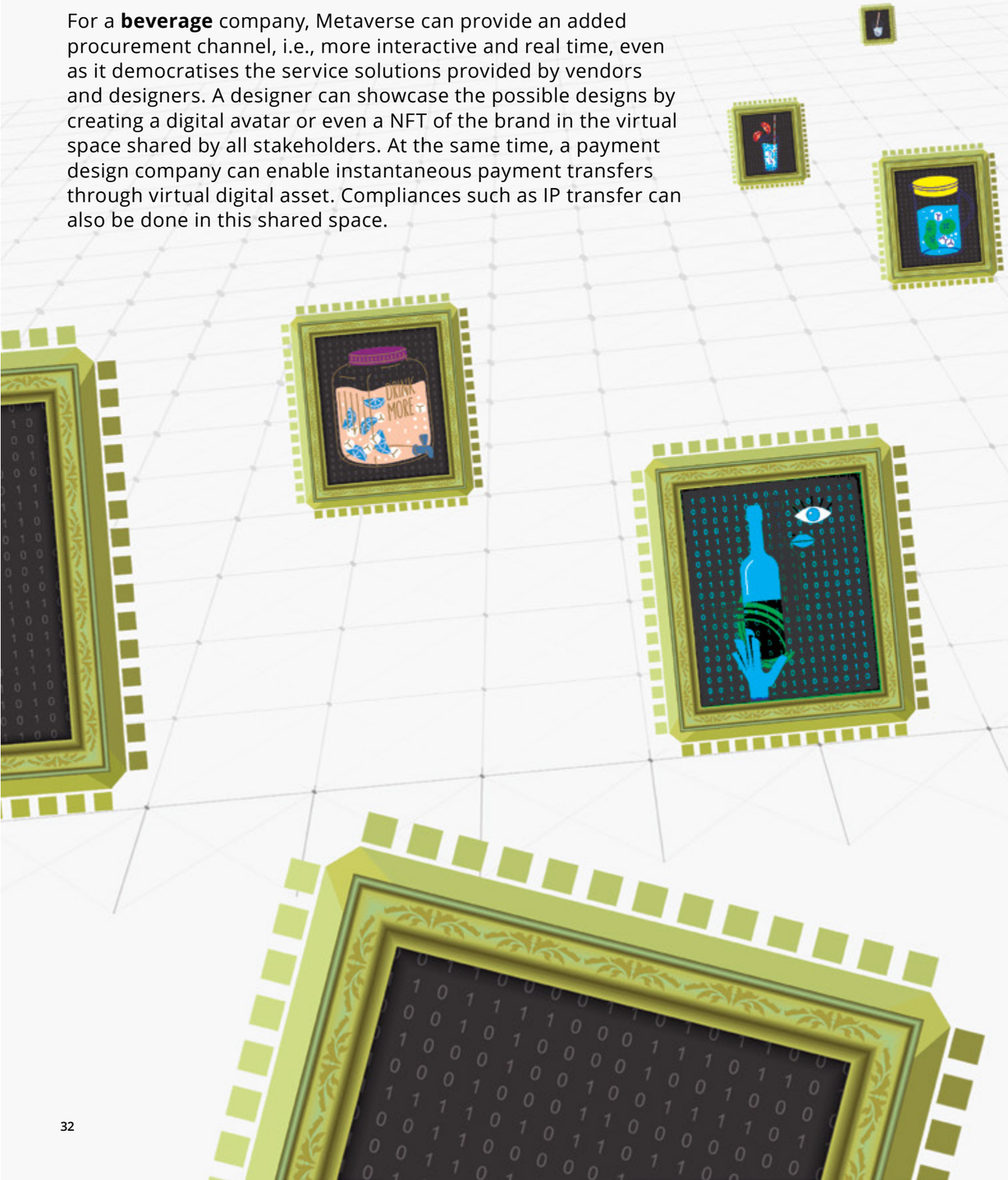


Auto manufacturers can standardise the traditional factory outlet by integrating Metaverse technologies across stakeholders. These include the Original Equipment Manufacturers (OEM) and suppliers. Hence, the factory engineers and the OEM planning experts can be virtually present in the same online space at the same time to optimise their design and simulation-based processes. Manufacturers can remotely record their technician's real-time task movements in the assembly line using the performance-based immersive tools. If required, product specialists can be invited to the online environment to guide a technician about technical issues in real time.



Metaverse and procurement

For a **beverage** company, Metaverse can provide an added procurement channel, i.e., more interactive and real time, even as it democratises the service solutions provided by vendors and designers. A designer can showcase the possible designs by creating a digital avatar or even a NFT of the brand in the virtual space shared by all stakeholders. At the same time, a payment design company can enable instantaneous payment transfers through virtual digital asset. Compliances such as IP transfer can also be done in this shared space.



Through Metaverse, **real-estate** designers can work with suppliers and vendors in an online environment to source the right products and services that complement the aesthetics of the space per customer preferences. Using Metaverse in a common online environment can aid in proper coordination and effective communication across vendors. Hence, they can provide the right furniture, lighting, decor accessories, wardrobe options, and painting and wallpapers. It also allows for check-ins with multiple stakeholders at short notice without having to travel in person. At the same time, a payment design company can enable instantaneous payment transfers between all stakeholders in the virtual space.

Metaverse can enable virtual supplier **meet-ups and conferences** through an immersive experience approach. Through avatar-based interactions, access to senior leadership can be improved in Metaverse vis-à-vis physical gatherings. Given, the persistent nature of Metaverse, suppliers and buyers can deploy virtual stalls to capture the imagination of decision makers. In addition, NFT-based rewards for suppliers, virtual interaction with brand ambassadors can be enabled in such events for all the stakeholders.

Conclusion

The Metaverse technology is likely to see exponential growth in the coming years with rising awareness about its applications and rapid advancements in the digital infrastructure and digital natives gaining purchasing power.

On one hand, as the supply side of the Metaverse ecosystem develops, more organisations are likely to reorient their business to take advantage of this evolving technology. Several organisations have already announced their Metaverse offerings, which may help achieve the required scale and demand to improve cost-effectiveness and adoption rate. On the other hand, the demand side of this ecosystem has been driven by demography, along with phygital worlds, virtual work/play facilitated due to the pandemic, and Moore's law playing its role in making the infrastructure affordable.

The success of Metaverse penetration will depend on the time organisations take to understand its relevance to their business and the pace of this ecosystem's development. The ability to ramp up the technical skills and readiness, and deal with rising cyber threats will be critical to its adoption. Governments can play an important role through the right regulatory policies and incentives for new-gen tech adoption.

Metaverse: The hype, possibilities, and beyond

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