GET VERSED ON THE METAVERSE

Greater China Research

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The Metaverse –
What it means for real estate in mainland China

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Executive summary

We are now living in an era of game-changing digitised human activity. This is a significant point in time, which only a few decades ago was once thought impossible. Moreover, it may encompass opportunities we could never envision.

The Metaverse is one of those opportunities for this point in time. It is a digital platform which offers a virtual environment that integrates Virtual Reality (VR), Augmented Reality (AR), and Mixed Reality (MR) so that users can partake in and experience realistic encounters in realistic settings.

It is growing rapidly as well. According to Global Market Estimates, the global Metaverse market is expected to grow at a compound annual growth rate (CAGR) of 45.5% between 2022 and 2027.

The ever-expanding Metaverse allows users to involve themselves within virtual, augmented and mixed realities. The Metaverse can be utilised for both work and leisure pursuits in an immersive way.

When further exploring the theme of how the Metaverse will specifically impact real estate in mainland China, we consider the topic from the perspective of sectors and in this report, we examine six real estate sectors.

For the office sector, three select examples that illustrate how the Metaverse could have an impact, include:

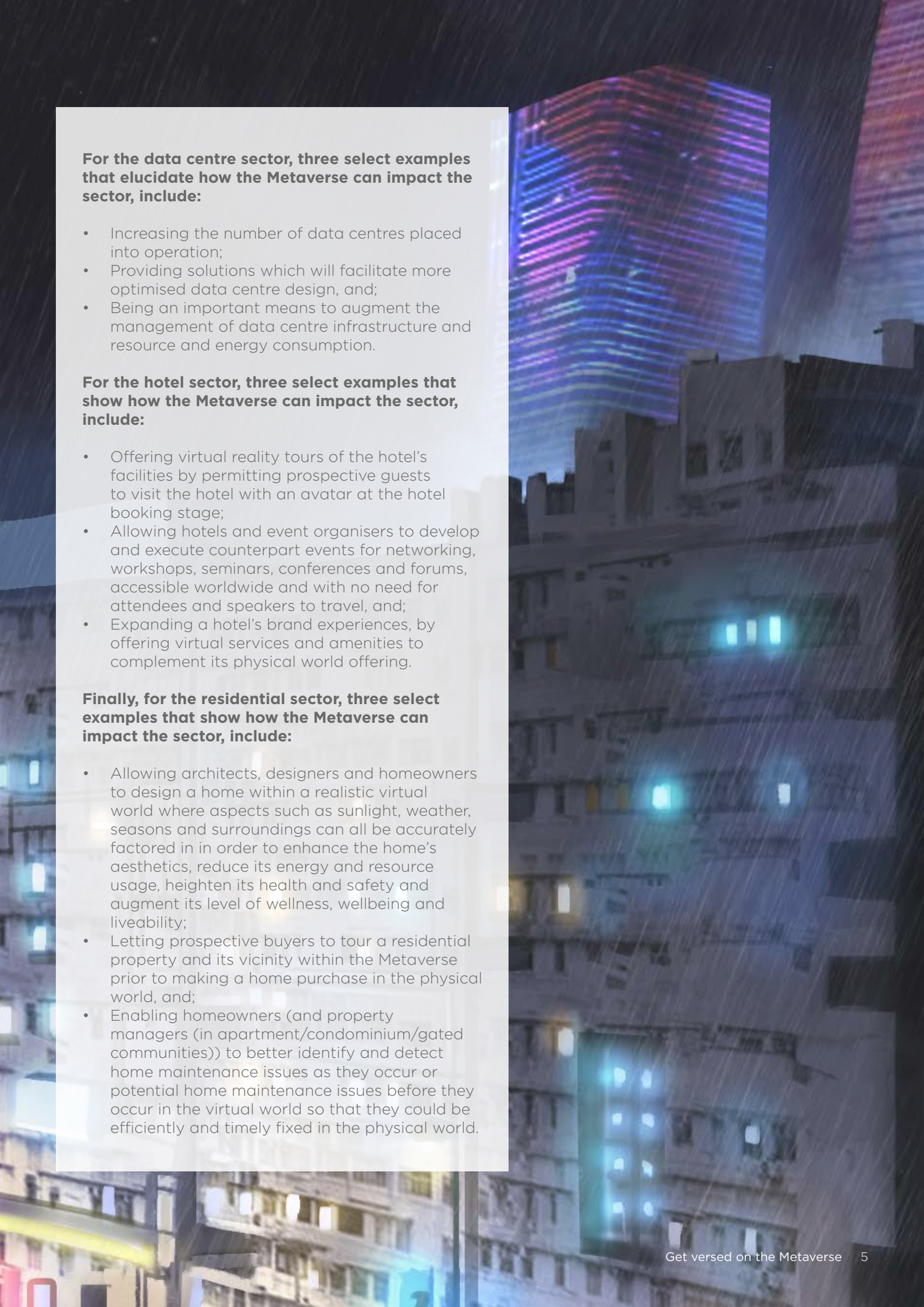
- Allowing enterprises to build office spaces in the virtual world where their employees and clients can gather, work, collaborate, exchange ideas and conduct business;
- Providing employees an immersive, inspiring, effective, comprehensive and appealing way to work, and;
- Furthering the approach taken by enterprises in terms of client engagement and business development.

For the retail sector, three select examples that demonstrate how the Metaverse could have an impact, include:

- Allowing shopping centre landlords and operators and retailers to design and build virtual retail spaces for consumers to experience and shop;
- Providing an immersive, stirring, effectual, all-embracing, alluring and convenient way for consumers to shop for either NFT-focused products or physical products, and;
- Further promoting a shopping centre or retailer's image, brand and marketing. Examples include virtual product placement, virtual immersive marketing, virtual product demos and NFT-based loyalty programmes.

For the industrial sector, three select examples that exemplify how the Metaverse can impact the sector, include:

- Creating effectual digital twins of industrial space, be it factory space or logistics warehouse space;
- Allowing for industrial equipment repairs to be carried out remotely by qualified and experienced engineers living in other regions and away from an affected industrial space, and;
- Empowering supply chain systems to advance procedures, plans and inventory.



For the data centre sector, three select examples that elucidate how the Metaverse can impact the sector, include:

- Increasing the number of data centres placed into operation;
- Providing solutions which will facilitate more optimised data centre design, and;
- Being an important means to augment the management of data centre infrastructure and resource and energy consumption.

For the hotel sector, three select examples that show how the Metaverse can impact the sector, include:

- Offering virtual reality tours of the hotel's facilities by permitting prospective guests to visit the hotel with an avatar at the hotel booking stage;
- Allowing hotels and event organisers to develop and execute counterpart events for networking, workshops, seminars, conferences and forums, accessible worldwide and with no need for attendees and speakers to travel, and;
- Expanding a hotel's brand experiences, by offering virtual services and amenities to complement its physical world offering.

Finally, for the residential sector, three select examples that show how the Metaverse can impact the sector, include:

- Allowing architects, designers and homeowners to design a home within a realistic virtual world where aspects such as sunlight, weather, seasons and surroundings can all be accurately factored in in order to enhance the home's aesthetics, reduce its energy and resource usage, heighten its health and safety and augment its level of wellness, wellbeing and liveability;
- Letting prospective buyers to tour a residential property and its vicinity within the Metaverse prior to making a home purchase in the physical world, and;
- Enabling homeowners (and property managers (in apartment/condominium/gated communities)) to better identify and detect home maintenance issues as they occur or potential home maintenance issues before they occur in the virtual world so that they could be efficiently and timely fixed in the physical world.

Introduction

Today in mainland China there is much talk of the Metaverse, but what exactly is it? In simple terms, it is a digital platform which offers a virtual environment which integrates Virtual Reality (VR), Augmented Reality (AR), and Mixed Reality (MR) so that users can partake in and experience realistic encounters in realistic settings.

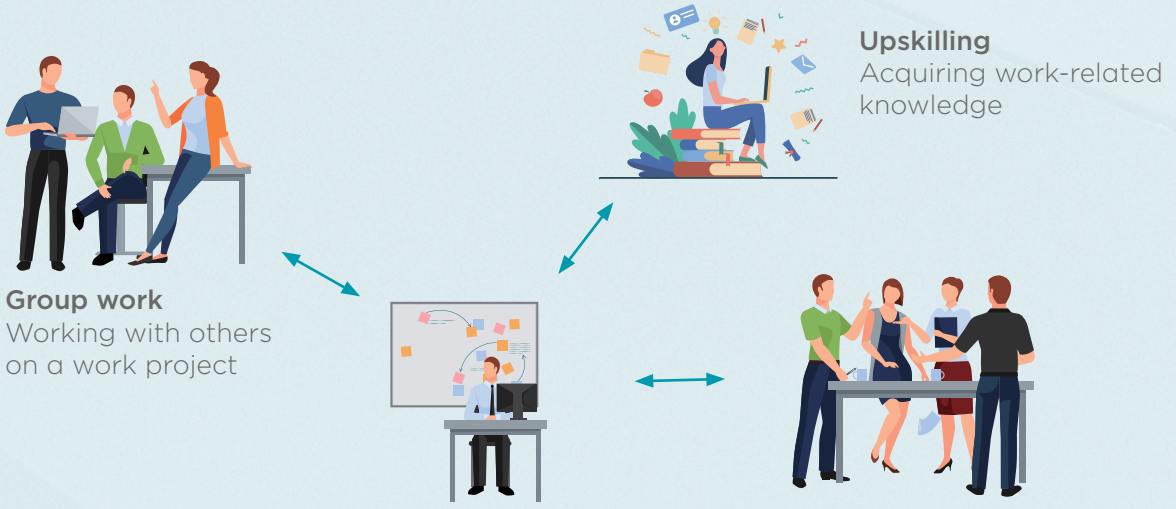
Given the platform is still in its infancy, many people are wondering what its impact will be when further developed. Practitioners in real estate in the region are no exception, with many questions being asked about the bearing the Metaverse could potentially have on the sector in mainland China. With this in mind and knowing the development of the Metaverse is still at the initial stages, we have put some preliminary thoughts together on our take on the Metaverse and its impact on the real estate sector in mainland China.

In mainland China, there are many general ways in which the Metaverse could be potentially used within real estate, including:

Design and build:

The ability to model a physical building or space and provide a virtual immersive experience at the testing and fine-tuning stage before actual physical construction commences. Many factors will have to be taken into account to produce a viable model, including, in the case of office space, the different workplace activities carried out by in-office employees at any given time during the working week (Figure 1).

Figure 1: Four selected in-office employee workplace activities



Source: Cushman & Wakefield Research

Project marketing – Sales and leasing:

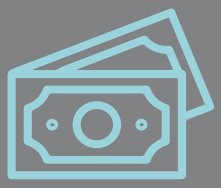
The ability to offer virtual property tours to assist with sales and leasing activities associated with a physical property (Figure 2).

Figure 2: Five advantages associated with a virtual property tour

Cuts time

Saves time for the prospective client and the agent as the prospective client can view the property via the online tour and then make a decision as to whether they want to view the physical property or not. Therefore, the agent can concentrate on serious prospective buyers and prospective clients can see the properties that they are really interested in.



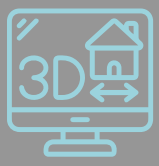


Cost reduction

Touring a number of physical properties can rack up costs and become expensive. Taking an online property tour incurs no travel costs.

A near-real experience

Virtual property tours can provide prospective clients with as near a real experience online when viewing a property they are interested in.





Distance

Travel distance is no longer an issue for those prospective clients living further afield and wishing to view a property. They can simply view the virtual tour.

Convenience

Prospective clients can view a property virtually at any time of the day or night. Viewings of a single property can be done virtually on multiple occasions.



Source: Cushman & Wakefield Research

Operations:

The ability to better maintain and operate a physical building by integrating a related Building Information Modelling (BIM) platform into a virtual model of the physical building. Armed with this information, as well as digital twin-generated data, the attendant building management team will be in a better position to act quickly, efficiently and correctly on any physical building maintenance and operation issues (Figure 3).

Figure 3: Selected advantages of an integrated BIM platform



Source: Siemens, Cushman & Wakefield Research

Investment:

The ability to purchase and sell virtual land and buildings in the Metaverse. The ability to invest in, build and operate a virtual building, whether it is an office building, a shopping centre, a logistics warehouse, a data centre, a hotel or a residential apartment building (Figure 4).

Figure 4: The Metaverse investment stats



Sandbox LAND (a well-known Metaverse player) grew by 15,000% in 2021.

Virtual land sold in 2021 was worth US$500 million.





Metaverse market revenue worldwide in 2021 was US$38.85 billion. This is expected to grow to US$678.8 billion by 2030.

Between November 2021 and January 2022, 8,000 lands per month were sold at an average transaction price of 3.5 Ethereum (ETH), or US$13,000. In January 2022, the daily average price of Metaverse land transactions exceeded 5 ETH, which was over US$18,000.





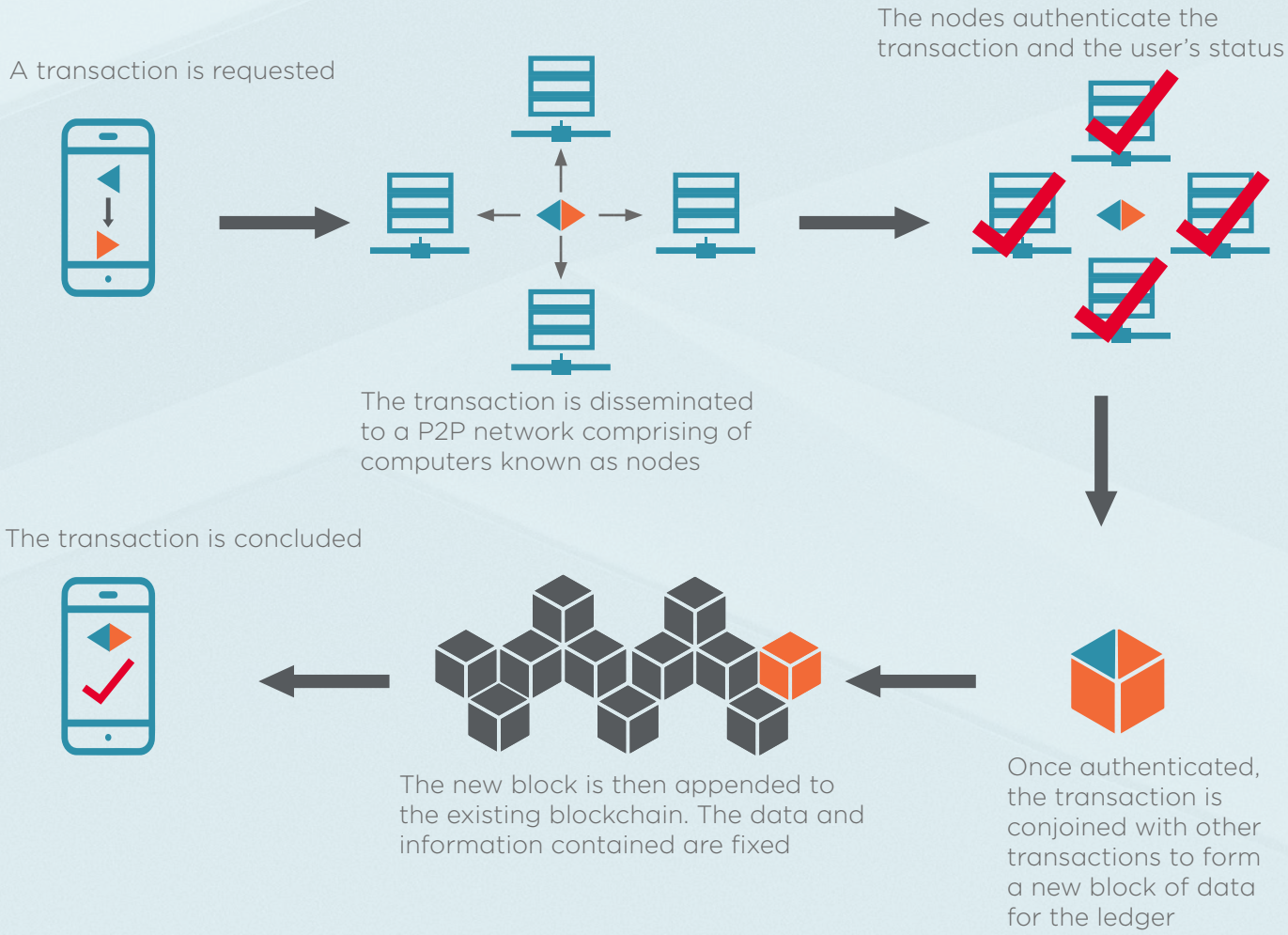
Metaverse real estate investment stems from around 25,000 crypto wallets.

Source: Centre for Finance, Technology and Entrepreneurship (CFTE), Statista, Cushman & Wakefield Research

But how does one purchase real estate within the Metaverse? This is where non-fungible tokens (NFTs) come into play.

NFTs can be linked to virtual land. An NFT is a one-off digital identifier that cannot be copied, substituted, or subdivided. It is stored on a blockchain. Additionally, NFTs serve as certificates of authenticity, which can be bought and sold (Figure 5).

Figure 5: The blockchain transaction process



Source: Cushman & Wakefield Research

Today, four of the most popular virtual worlds within the Metaverse by market cap, which sell digitalised virtual real estate and plots of land via NFTs, are Sandbox, Decentraland, Voxels and Somnium.

Once an entity has purchased a virtual plot of land, it can choose to hold, develop, lease or sell on the land. If developing the land, an entity could either choose to self-develop and operate the virtual property or hire a team of consultants and advisors to assist.

Following on from this, a good number of investor/developer entities have already made virtual real estate investments. Well-known law firms, banks and retail brands, for example, now have operational virtual offices and up-and-running virtual flagship stores to enhance the employee/client/consumer experience and stimulate productivity and service/goods sales.

In addition and recently, a Metaverse Real Estate Investment Trust (REIT) has been launched by the Metaverse Group. Comprised of prime properties in the leading Metaverses, buildings under the REIT are situated in sought-after areas with constricted supply/high demand traits and exceptional neighbourhoods.

Ahead, it could well be the norm for show houses/show spaces of physical projects to be promoted on the Metaverse in order to reach a global audience of buyers. Ultimately, the immersive experience and the impact factors discussed in our report will transform the real estate industry as we know it today. Not just in mainland China, but around the world, industry practitioners would be best advised to understand the potential changes in store now in order to best position themselves to achieve competitive business advantage in the future.



WHAT IT MEANS FOR REAL ESTATE

When further exploring the theme of how the Metaverse will more specifically impact real estate in mainland China, we need to look at the topic from a sector perspective. Here we examine six selected real estate sectors, namely:

- *Office;*
- *Retail;*
- *Industrial;*
- *Data centres;*
- *Hotel, and;*
- *Residential.*



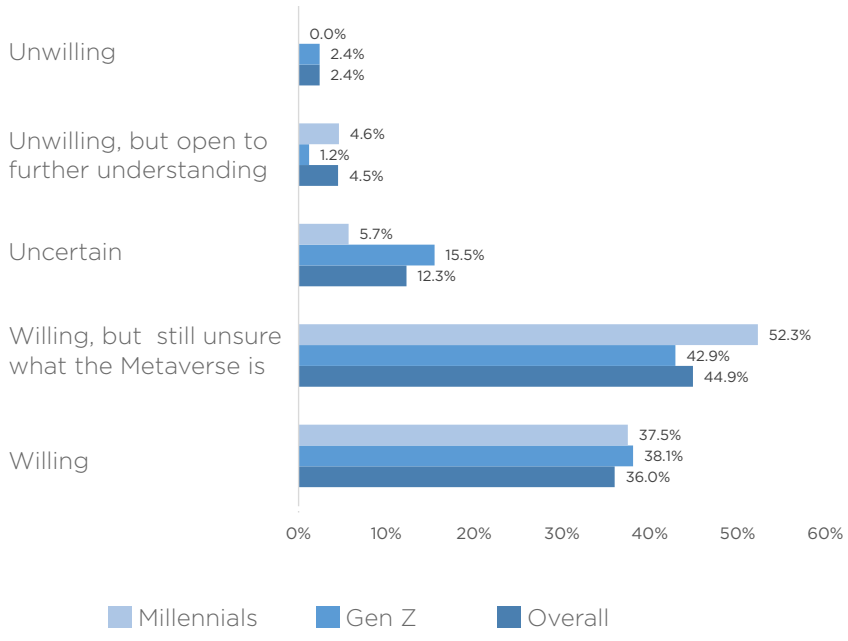
WHAT IT MEANS FOR OFFICE

The Metaverse has the potential to:

- Allow enterprises to build office spaces in the virtual world where their employees and clients can gather, work, collaborate, exchange ideas and conduct business. To date, some law firms and some major banks, such as HSBC and J.P. Morgan, have reported opening offices in the Metaverse;

- Provide an immersive, inspiring, effective, comprehensive and appealing way to work – especially for those employees who work remotely – either fulltime or in a hybrid manner. According to Zhaopin.com, 80.8% of employee respondents to a survey carried out in mainland China said they were willing to work within the Metaverse, with the proportion of Millennials and Gen Z employees being higher, at 89.8% and 81.0%, respectively (Figure 6);

Figure 6: Willingness of employees in mainland China to work within the Metaverse (2022)



Source: Zhaopin.com, Cushman & Wakefield Research





- Be a fourth place for employees to work and interact in – the first being the home, the second being the office and the third being 'other' places, such as a café, library or park;
- Create an unlimited variety of well-being spaces for employees to take a break or even to work from, such as a forest, an alpine meadow or a fine-grained sand beach;
- Level the playing field by eradicating workplace proximity bias;
- Generate positive knock-on effects in terms of office employee teamwork enhancement, work efficiency and work output;
- Further the approach taken by enterprises in terms of client engagement and business development by allowing for the option of client meetings and client events to be conducted in a VR/AR/MR form of the office;
- Better promote an enterprise's service or product as well as to further elevate an enterprise's image and brand. With a number of enterprises already having up-and-running offices in the Metaverse, some are exploring the possibilities of offering a suite of their services on their respective virtual office platforms;
- Assist in the facilitation of employee onboarding and training;
- Replicate 'bump into' employee experiences and subsequent interactions – which have always been an important medium for conversation and work-related idea exchange.
- Be a platform for employee social events, such as office parties and sports activities, and;
- Cut an enterprise's carbon emissions by helping to reduce travel. Company board meetings, for example, could be held in the Metaverse rather than in person.

WHAT IT MEANS FOR RETAIL

The Metaverse has the potential to:

- Allow shopping centre landlords and operators and retailers to design and build virtual retail spaces for consumers to experience and shop. K11, Adidas, Burberry, Gucci, Tommy Hilfiger, Nike, Samsung and Louis Vuitton are all examples of enterprises from the retail world that have built a virtual retail platform on the Metaverse;

- Provide an immersive, stirring, effectual, all-embracing, alluring and convenient way for consumers to shop for either NFT-focused products or physical products. Gartner envisions around a quarter of consumers will spend one hour per day within the Metaverse by 2026;

- Allow consumers to test products in the virtual world before they make a physical-world transaction. For example, Ikea allows its customers to scan an image of a room they would like to purchase an item of furniture for. The customer can then place the item of furniture they are interested in purchasing into the virtual room setting to see if it fits in terms of size, design and colour. Once purchased, after-sales product training can also take place on the Metaverse;

- Further promote a shopping centre or retailer's image, brand and marketing. Examples include virtual product placement, virtual immersive marketing, virtual product demos and NFT-based loyalty programmes. The younger generation in mainland China, aged 18-22, clearly prefer shopping centres/retailers to market through visualised virtual human beings, while the consumers group aged 33-37 prefer shopping centres/retailers to market through NFTs (Table 1);

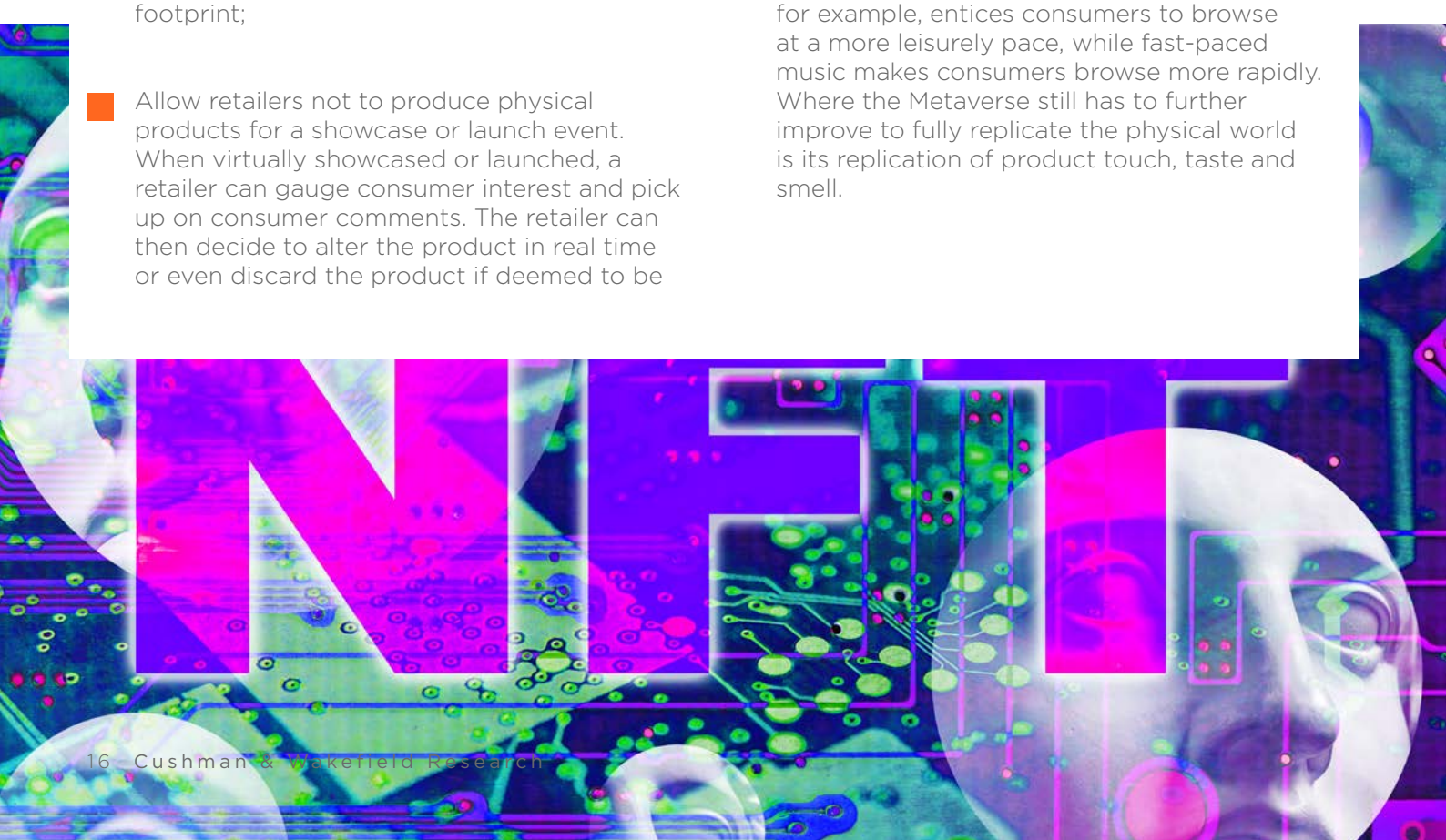


Table 1: Target Group Index (TGI): What mainland Chinese consumers expect shopping centres/retailers to adopt in terms of Metaverse marketing

Age	18-22	23-27	28-32	33-37
NFT-Social	102	95	93	115
NFT-Membership	69	111	123	135
Virtual Space-Social Platform	99	111	91	102
Virtual Space-Private Sphere	89	101	125	87
Visual Human-Idol	124	93	80	86
Visual Human-IP	134	89	77	79

Source: Growth Box, Tencent Marketing Insight, Cushman & Wakefield Research.

- Collaborate with other businesses in the virtual world. An example is Balenciaga and its collaboration with Fortnite. This has allowed the Balenciaga brand name to have further exposure within the online gaming community;
- Allow shopping centres and retail brands to hold virtual events. Shopping centre customer activities as well as brand pop-up store launches, fashion shows, VIP customer parties and product launch events can be held and hosted live in a virtual setting. Customers and guests attending virtually will be able to walk around, engage with other attendees and purchase exclusive products;
- Cut consumer travel to physical retail spaces, thereby lessening their overall CO2 emission footprint;
- Allow retailers not to produce physical products for a showcase or launch event. When virtually showcased or launched, a retailer can gauge consumer interest and pick up on consumer comments. The retailer can then decide to alter the product in real time or even discard the product if deemed to be a non-seller. This will cut down on unwanted physical product material wastage, which will be a further boost to sustainability;
- Accurately replicate the image of a physical world product. Accurate replication as well as a visually appealing surrounding is vital to the success of any physical world product being promoted or sold within the Metaverse, and;
- Stimulate an appropriate shopping experience mood for the consumer within the Metaverse through the appropriate use of sound. Just like in the physical world, retailers realise that music genre, pace and tempo within their respective Metaverse retail platform needs to match the product being promoted/sold as it has a significant effect on consumer purchasing behaviour. Slow-paced music, for example, entices consumers to browse at a more leisurely pace, while fast-paced music makes consumers browse more rapidly. Where the Metaverse still has to further improve to fully replicate the physical world is its replication of product touch, taste and smell.



WHAT IT MEANS FOR INDUSTRIAL

The Metaverse has the potential to:

- Offer added value to manufacturers and supply chain operators in both the digital and physical domain. From augmenting work safety to enhancing predictive maintenance, the Metaverse has the potential to offer much to factory and logistics warehouse space;

- Create effectual digital twins of industrial space, be it factory space or logistics warehouse space. By linking the real and the digital worlds, more efficient designs can be made, and locations optimised. Moreover, the planning, building and modification of industrial space can be speeded up, made more efficiently and made more effectively. In addition, the limitless co-operation proffered by the Metaverse will also mean that every participant, from the industrial space employees to the industrial space ESG and sustainability teams, will be able to have an active say in the construction and operation of the industrial space. Furthermore, industrial space daily operations can be better tweaked to ensure error mitigation and business optimisation is met at any given time. Siemens is an example of an enterprise that has constructed an industrial space digital twin (Figure 7 and Case Study 1 in the Appendix).

Figure 7: Siemens Digital Native Factory, Nanjing timeline

1996 — Siemens Numerical Control (SNC) founded.

2004 — SNC's Phase II factory was expanded, and SNC started localised manufacturing.

2007 — SNC's Phase III factory was completed.

2010 — The global management headquarters of Siemens motion control standard products was established within SNC.

2016 — The production of Simotics 1FK7 servo motor was officially transferred to SNC, making SNC a comprehensive production and R&D base in the field of automation products.

2018 — SNC launched the Digital Native New Factory project.

2022 — SNC's new Digital Native Factory was completed.

Source: Cushman & Wakefield Research



Siemens's Digital Native Factory in Nanjing has contributed to manufacturing capacity in its real-world equivalent project increasing by 200% and production efficiency by 20% (Figure 8);

Figure 8: Siemens Digital Native Factory value-add

Manufacturing capacity increase: 200%

Production efficiency increase: 20%

Source: Siemens, Cushman & Wakefield Research

- Simulate industrial space production, such as when the indoor space temperature rises or when a piece of production equipment breaks down or when an updated piece of equipment is installed;
- Advance training effectiveness and safety". A number of enterprises today have work training programmes that utilise Metaverse technology to train employees on industrial-related equipment that is demanding or hazardous to use in reality;
- Allow for industrial equipment repairs to be carried out remotely by qualified and experienced engineers living in other regions and away from an affected industrial space. This situation was hastened during the COVID-19 pandemic when support teams were impacted by travel restrictions. A knock-on benefit to this is also a reduction in travel-related carbon emissions;
- Advance collaboration on industrial product design. The Metaverse has the potential to further the intensity of collaboration by increasing the pool of active collaborators as proximity to physical collaboration meetings becomes less of an issue. A knock-on effect to advanced collaboration could be shortened product life cycles for new products through faster-paced development of practicable designs;
- Better trial, model and implement on final product design as well as industrial and supply chain stratagems. For example, within the supply chain, being able to better understand what and how cost efficiencies can be achieved via a streamlining strategy;



- Empower supply chain systems to advance procedures, plans and inventory. Related enterprises will be able to cut outlays, better meet customer demands, and propel greater resilience and sustainability. These enterprises will be able to visualise the whole supply chain system – from suppliers to end customers – to recurrently balance supply and demand in real time. By utilising the Metaverse, related enterprises could then effectively eliminate the gap between supply chain planning and execution;

- Generate synthetic "perfect data". This data can be immediately modified to any current situation. During the pandemic, for example, many enterprises couldn't precisely predict supply or demand. Past data was banked upon to navigate an unparalleled circumstance. With Metaverse-generated synthetic data, enterprises can develop estimates that entirely replicate where they and the market are at any given time;

- Assist enterprises in eradicating supply chain constrictions. Both retailers and suppliers could gather together within the Metaverse and visualise, on an immersive supply chain system map, precisely where the inventory is. They could walk around key ports, logistics hubs and logistics warehouses virtually to detect likely shipping delays due to bottlenecks and form conceivable alternatives to make sure products continue to move towards their intended destinations;

- Allow a product to "know" two essential facts about itself; its location and its inventory standing. Utilising edge computing, the intelligent product could activate programmed product replacement and routing decisions, which could be seen in real-time within the Metaverse. Customers would then be able to get products when and where they want them. Moreover, product demand could be better shaped and product pricing could be automatically tweaked based on changes in demand – thereby boosting margins and general profitability, and;

- Introduce virtual disasters at any point with the production or supply chain system. This virtual simulation within the Metaverse will be able to emphasise to related enterprises where their production and/or supply chain systems have the potential to fail and how their systems could be made more robust and resilient.



WHAT IT MEANS FOR DATA CENTRES

The Metaverse has the potential to:



- Increase the number of data centres placed into operation. The Metaverse will necessitate a huge amount of computing power and data processing, storage and distribution, and as a result, more data centres will be required to facilitate the overall operation of the Metaverse (Table 2);

Table 2: Selected enterprises involved in building the Metaverse (2022)

Infrastructure (network & computing)

Chips & processors	5G & low latency networks	Cloud infrastructure	Edge infrastructure
TSMC, Qualcomm, NVIDIA, Samsung, Intel, etc.	AT&T, China Mobile, Comcast, T-Mobile, Verizon, etc.	Amazon Web Services (AWS), Azure, Google Cloud, Alibaba Cloud, Vmware	Akamai, EdgeConneX, StackPath, Vapor IO, EdgeMicro, Zenlayer

Access/interface (hardware)

Haptics	Headsets (VR)	Holographics	Smart glasses (AR)
HaptX, Teslasuit, Sense Glove, Manus, Fundamental VR, Lofelt	Oculus VR, PICO, Pimax, VIVE, DPVR, Varjo, Unai	SeeReal Technologies, Looking Glass Factory, VividQ, RealView, IKIN, Light Field Lab, Campfire, Kino-mo, Base Hologram	Magic Leap, Mojo, MAD Gaze, LLVISION, Nreal, Rokid, REALMAX

Virtulisation tools

3D design engines	3D modeling & capture	AR development kits	Avatar development	Volumetric video
Unity, Unreal Engine, Cocos, CRYENGINE, N.Light, Godot, GritWorld, Blender	Expivi, VNTANA, 3XR, Threedium, Emersya, 3dctrl, Prevu3D, Threedy.ai, Jump into Reality, Threekit, VirtualFlow, Occipital	Blippar, EasyAR, Niantic, MRXST, ARCore, Wikitude, Amazon Sumerian	Magic Leap, Mojo, MAD Gaze, LLVISION, Nreal, Rokid, REALMAX	Casasity, Depthkit, Volograms, 89, Condense Reality, Yoom, HoloCap, Holotch, DGene, Omnivor

Virtual worlds

Centralised worlds	Decentralised worlds
Roblox, Linden Lab, VRChat, Minecraft, Rec Room	Sandbox, Voxels, Digital Village, Somnium Space, Decentraland, Portals

Economic infrastructure

Payments	Cryto exchanges	Crypto wallets	NFT marketplaces
Binance, Uniswap, Coinbase, Blockchain.com, Crypto.com, Kraken, Gemini	Binance, Uniswap, Coinbase, Blockchain.com, Crypto.com, Kraken, Gemini	Bitski, MetaMask, Venly, TrustWallet	Dapper Labs, Rarible, Magic Eden, OpenSea, DMarket

Experiences

Gaming		Virtual concerts	Virtual fashion	Virtual real estate	Virtual work	Other
Gaming		Virtual concerts	Blippar, EasyAR, Niantic, MRXST, ARCore, Wikitude, Amazon Sumerian	Magic Leap, Mojo, MAD Gaze, LLVISION, Nreal, Rokid, REALMAX	Casasity, Depthkit, Volograms, 89, Condense Reality, Yoom, HoloCap, Holotch, DGene, Omnivor	Spatial, Space VR, Dreamscape Immersive, SmartGuide
AR/VR Games	Decen-tralised Games	AmazeVR, Pixelynx, Wave, Ristband, MelodyVR, NOYS VR	DressX, Bigthx, RTFKT, Aglet, BNV, StarHeir, The Fabricant	Metaverse Group, Everyrealm	Cosmos, MeetinVR, IrisVR, vSpatial, Cavrnus, vr, l, Vibe	Spatial, Space VR, Dreamscape Immersive, SmartGuide
Illumix, Survios, ForeVR, Virtuix Omni, Resolution Games, NOLO, Polyarc	YugaLabs, h, Mythical Games, Splinterlands					

Source: CB Insights, Cushman & Wakefield Research

- Provide solutions which will facilitate more optimised data centre design, management of infrastructure and resource and energy consumption leading to greater operating efficiency and a reduction in overall operating costs, and;
- Improve disaster management by highlighting any potential data centre operational failure points in the virtual world and coming up with disaster recovery solutions for the real world.

WHAT IT MEANS FOR HOTELS

The Metaverse has the potential to:

- Assist hotels in augmenting their sales and marketing stratagems, their revenue management practices, their daily operating processes, their guest experience and their guest/hotel brand engagement, among others;

- Open new marketing channels and reach a greater number of prospective guests. Sales representatives can even utilise the Metaverse to search for prospective guests;

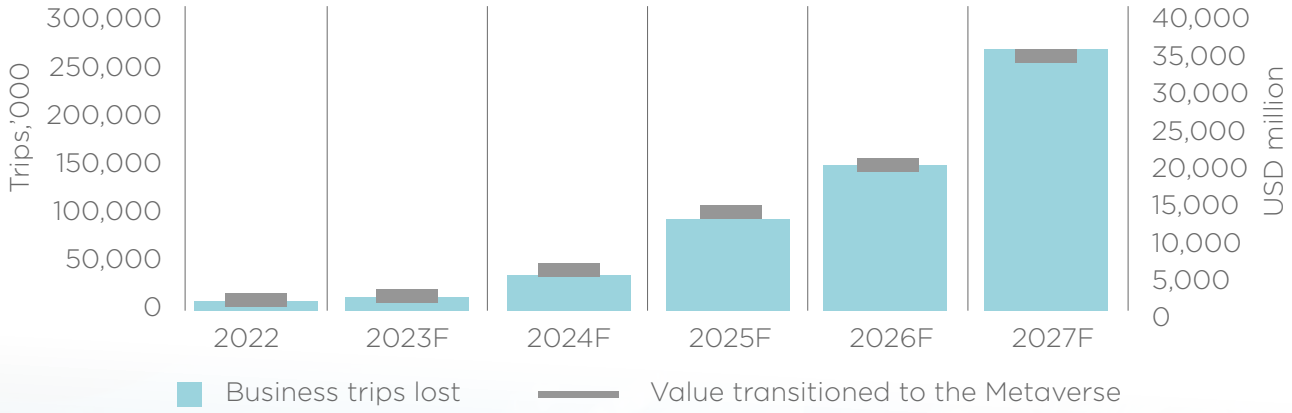
- Offer virtual reality tours of a hotel's facilities by permitting prospective guests to visit the hotel with an avatar at the hotel booking stage. Moreover, existing guests could be provided admission to virtual hotel venues to hold meetings or events;

- Encourage prospective guests to consider the various upgraded room choices on offer, investigate the different hotel experiences at hand and view the various hotel product and service offerings, all of which will add to add-on sales revenue;

- Allow hotels and event organisers to develop and execute counterpart events for networking, workshops, seminars, conferences and forums, accessible worldwide and with no need for attendees and speakers to travel. With this, outgoings related to business travel are expected to be somewhat cannibalised. According to Euromonitor International, globally, 274 million business trips could be lost by 2027 and possibly US$36 billion of in-person business travel expenditure could be moved to virtual business travel events and activities within the Metaverse (Figure 9);



Figure 9: The Metaverse and its impact on global business travel (2022-2027F)



Source: Euromonitor International, Cushman & Wakefield Research

- Fashion new types of loyalty programmes. Guests could be invited to take part in activities within the Metaverse or partake in events and challenges to become qualified for specific rewards, promotional codes or special deals. NFTs, for example, could potentially play a role in these loyalty programmes. At Art Basel Miami Beach 2021, an ongoing art show, Marriott issued three NFTs as part of its "Power of travel" campaign. Attracted bidders were able to buy the digital art NFTs with cryptocurrency – an additional participant within the Metaverse;
- Expand a hotel's brand experiences, by offering virtual services and amenities to complement its physical world offering, such as a virtual wedding ceremony venue and related services, and;
- Allow for hotel staff to get in touch with team members, remote workers, managers, off-site teams, and industry executives – all within the virtual environment.

WHAT IT MEANS FOR RESIDENTIAL

The Metaverse has the potential to:

- Allow architects, designers and homeowners to design a home within a realistic virtual world where aspects such as sunlight, weather, seasons and surroundings can all be accurately factored in order to enhance the home's aesthetics, reduce its energy and resource usage, heighten its health and safety and augment its level of wellness, wellbeing and liveability;

- Alter the internal design/use of residential properties. Increasingly, given the expected greater use of the Internet in general and the Metaverse in particular, dedicated space will have to be set aside within the home to accommodate this lifestyle change;

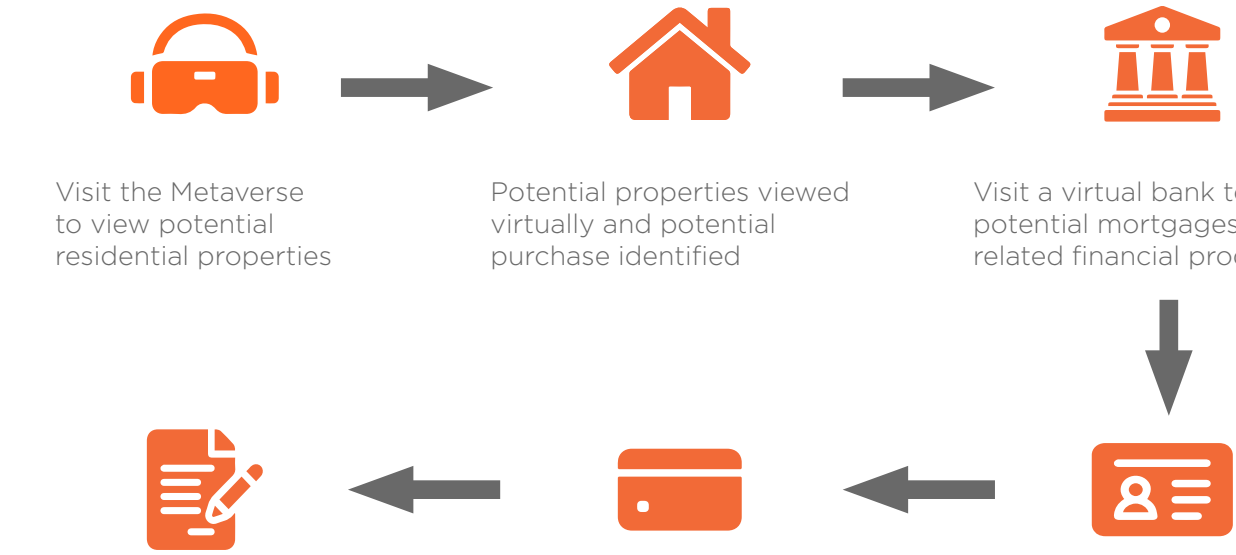
- Let prospective buyers tour a residential property and its vicinity within the Metaverse prior to making a home purchase in the physical world;

- Expand the pool of prospective residential property buyers given the fact a property tour within the Metaverse can be conducted from any part of the world that has adequate access to the Internet. This would be of benefit to real estate agents;

- Allow a prospective residential property buyer to connect with their virtual bank and view mortgage options and other financial products they can access, without having to physically drop by a lender. Upon an agreed sale, the purchase could also be fully completed within the Metaverse (Figure 10);

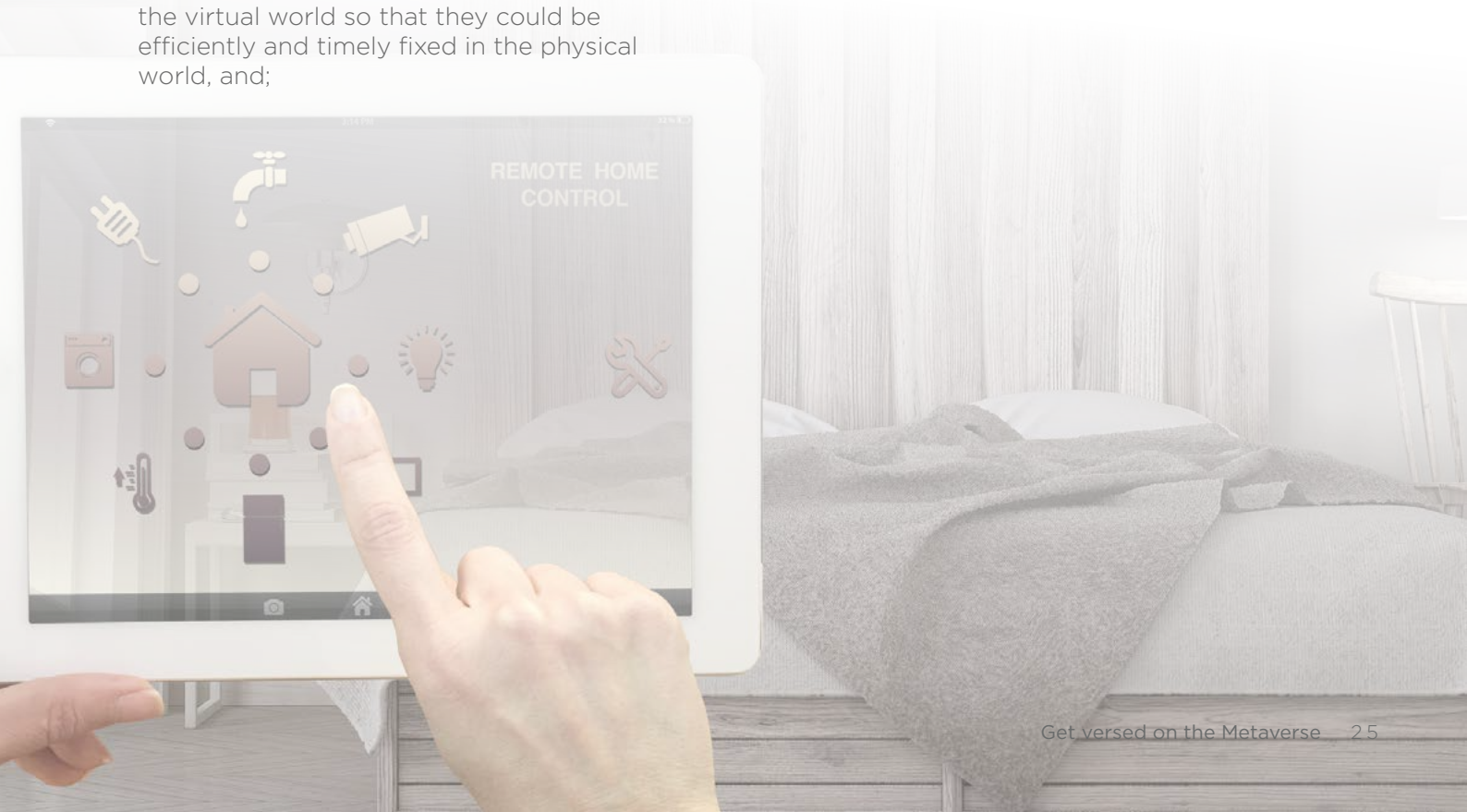


Figure 10: A residential property purchase within the Metaverse



Source: Cushman & Wakefield Research

- Enable homeowners (and property managers (in apartment/condominium/gated communities)) to better identify and detect home maintenance issues as they occur or potential home maintenance issues before they occur in the virtual world so that they could be efficiently and timely fixed in the physical world, and;
- Allow property managers (in apartment/condominium/gated communities) to better interact virtually with other management staff as well as the homeowners.



KEY TAKEAWAYS

We are now living in an era of game-changing digitised human activity. This is a significant point in time, which only a few decades ago was once thought impossible – moreover, it may encompass opportunities we could never envision.

As digitised human activity increases, so the Metaverse will expand. According to Global Market Estimates, the global Metaverse market is expected to grow at a compound annual growth rate (CAGR) of 45.5% between 2022 and 2027.

Alongside this growth, we expect the Metaverse to penetrate the real estate industry in mainland China on many levels:



Examples include:

For the office sector: Allowing enterprises to build office spaces in the virtual world where their employees and clients can gather, work, collaborate, exchange ideas and conduct business;

For the retail sector: Enabling shopping centre landlords and operators and retailers to design and build virtual retail spaces for consumers to experience and shop;

For the industrial sector: Creating effectual digital twins of industrial space, be it factory space or logistics warehouse space;

For the data centre sector: Increasing the number of data centres placed into operation;

For the hotel sector: Offering virtual reality tours of a hotel's facilities by permitting prospective guests to visit the hotel with an avatar at the hotel booking stage, and;

For the residential sector: Allowing architects, designers and homeowners to design a home within a realistic virtual world where aspects such as sunlight, weather, seasons and surroundings can all be accurately factored in in order to enhance the home's aesthetics, reduce its energy and resource usage, heighten its health and safety and augment its level of wellness, wellbeing and liveability.

APPENDIX

Case study 1

Nanjing Siemens Numerical Control (SNC) Digital Native Factory

A game changer for a fast-changing world

1996 – Present

Summary:
The Digital Native Factory is Siemens's first factory to effectively get to grips with digital change to become a digital enterprise. Industry today is meeting pressing, fast-changing challenges. Digitalisation and automation are the game changers to plot a course around these challenges.



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Timeline of major events/milestones reached:

1996 — Siemens Numerical Control (SNC) founded.

2004 — SNC's Phase II factory was expanded, and SNC started localised manufacturing.

2007 — SNC's Phase III factory was completed.

2010 — The global management headquarters of Siemens motion control standard products was established within SNC.

2016 — The production of Simotics 1FK7 servo motor was officially transferred to SNC, making SNC a comprehensive production and R&D base in the field of automation products.

2018 — SNC launched the Digital Native New Factory project.

2022 — SNC's new Digital Native Factory was completed.

Overview:

The Digital Native Factory was digitally planned. Moreover, its processes were and are digitally simulated and optimised in the virtual world.

Impact:

Existing processes have been enhanced through digitisation. Siemens built a detailed model of the factory, visualised it in 3D format, and used other extensive data to create a complete digital twin of the new factory by combining plant data, production line data, performance data, and even building information data. All in all, operational efficiency and performance have been improved.

How it was done:

From the initial idea to the start of production, each step has been supported by digitisation. The planning and simulation of the factory have been completely digitised. The factory was optimised in the virtual environment before actual construction commenced;

The Digital Native Factory was designed and built as a highly energy-efficient and sustainable production site for Siemens. Sustainable features and elements associated with the factory include a dedicated photovoltaic system, automatic LED lighting, high-efficiency pumps, fans and cooling elements, and a rainwater recovery system.

Results:

The new Digital Native Factory significantly improves efficiency and performance when compared to before;

After the new factory was put into operation, its production efficiency increased by 20%, its production capacity nearly doubled, its flexible production capacity increased by 30%, product time to market was shortened by nearly 20%, space utilisation rate increased by 40%, and material circulation efficiency increased by 50%.

Key takeaways:

Digital simulation is key to ensuring a production factory will optimally work upon plant completion and operation commencement;

Merging the physical world with the virtual world results in an open continuous optimisation loop.

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