In 2021, the word metaverse became a trend. It seemed like science fiction to many people but companies in China and the rest of the world, like Tencent, Alibaba, Meta, Microsoft, Google and more, had already been developing virtual reality projects for some time.

So what have these companies been doing and what have they developed? What can be learned from looking at applications in different parts of the world? How have businesses been using Web3 tools and are they only for tech giants and huge brands? In this book you'll learn:
· What metaverses are
· Which companies are shaping the digital worlds of tomorrow
· How businesses of all sizes can use Web3 tools now and in the future

"When the metaverse arrives, it will encompass all facets of our lives from school to work to play and everything in between. From now until then, there will be many rocky roads as we define the rules needed to properly operate it."
— **Alvin Wang Graylin, China President & Global VP of Corporate Development at HTC**

"Metaverse business applications present strong use cases that can create real value and a solid business model. E-commerce will be transformed into 3D-commerce."
— **Nina Xiang, Founder of China Money Network and Author of Parallel Metaverses**

Ashley Dudarenok is a serial entrepreneur, award-winning digital marketing professional and author. She has a deep theoretical knowledge of China's digital development and has been immersed daily in the market for well over a decade, observing and applying what works for businesses. She helps companies learn for China and learn from China and has worked with Chinese tech giants and some of the world's most loved Fortune 500 brands.
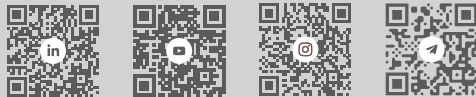
DIGITAL CHINA

METAVERSES FOR BUSINESS

HOW COMPANIES IN CHINA AND THE REST OF THE WORLD ARE EXPLORING WEB3

ASHLEY DUDARENOK

METAVERSES FOR BUSINESS

HOW COMPANIES IN CHINA AND THE REST OF THE WORLD ARE EXPLORING WEB3

by Ashley Dudarenok

Ashley Dudarenok is a Chinese serial entrepreneur, award-winning digital marketing professional and author. Recognised as a "guru on digital marketing and fast-evolving trends in China'' by Thinkers50, Ashley is the founder of China-focused digital marketing agency Alarice and China digital consultancy ChoZan 超赞. She has a deep theoretical knowledge of China's digital landscape development and is immersed daily in the market, observing and applying what works for businesses.

Her expertise has been sought after and endorsed by China's tech giants, such as Alibaba, Jingdong, Pinduoduo and others, and she has served some of the world's most loved Fortune 500 brands by applying tactics and strategies learned from the fast-moving, innovative China market.

She helps create a bridge between China and the rest of the world. Ashley Dudarenok is an author of 10 books about digital China.

Alarice (alarice.com.hk) is a China-focused digital marketing agency that develops tailored strategies for the China market and executes them. It does consumer and market research to create these strategies, manages brand social media communities on WeChat, RED, Weibo, Douyin and others, develops content, works with influencers and livestreamers, executes campaigns and more.

With offices in Hong Kong, Shanghai and Shenzhen, Alarice's international team includes dedicated Chinese social media marketers, strategists, copywriters, designers, and project managers. With 12 years of successful experience in this rapidly evolving field, it has delivered outstanding results for brands large and small in a variety of industries including luxury, FMCG, finance, education, tourism and hospitality, fashion, wine and spirits, beauty, B2B and others.

ChoZan 超赞 (chozan.co) - Learn for China, learn from China. ChoZan 超赞 is an award-winning China digital consultancy backed by research and trendwatching with offices in Hong Kong, Shanghai and Shenzhen. It executes consulting projects, educates and provides keynotes, training and resources for in-house marketing and e-commerce teams to aid their success in China. ChoZan 超赞 also serves global multinationals and tech companies going through digitalization.

ChoZan 超赞 has deep expertise in the digital economy and omnichannel marketing. It helps brands stay on top of rapid change, translate insights into actions, and upskill their teams to improve strategic vision, marketing and sales. It also helps multinationals and global tech companies to learn from and make sense of China's digital transformation journey and use these experiences to shorten their own learning curve at home.

Contents

Introduction

The metaverse. In Chinese, yuanyuzhou (元宇宙). Surely you've come across this term in the past few years. Mark Zuckerberg even changed Facebook's name to Meta to show his commitment to the concept. There's so much buzz surrounding the metaverse, but many people wonder what it is and what all the fuss is about.

Just as there were previous hype cycles around NFTs and cryptocurrencies that eventually died down, the excitement around the metaverse has calmed down. This doesn't mean that it has gone away, however.

The metaverse is just the next stage of the interactive internet and encompasses a variety of formats from highly interactive apps that use augmented reality to virtual replicas of actual cities that reflect the real-time activities going on in that city from vehicle traffic flow to levels of rainfall. It doesn't really exist yet in

the cohesive way that the current internet does, but the building blocks exist and the process of connecting them all is starting.

Some of these are obvious to the public, like the huge popularity of virtual worlds like Minecraft, while others are obvious only to smaller groups of people, like car engineers and architects who have been using metaverses and virtual reality in their work for many years already. But in the next few years, more uses and examples will pop up as things develop.

It goes without saying that tech and gaming companies are involved in this area. Many video games are already metaverses of a sort with massive online worlds where players from all over the world roam as avatars. They build things, socialize, do tasks, listen to concerts, buy and sell things and, of course, play games.

Some consumer goods companies are already making good use of metaverse elements as well. For example, Nike have made their own metaverse spaces that host a variety of sports-based games and virtual Nike products you can win by exploring the world.

But even municipal governments around the world are making use of metaverses to create virtual twins of their cities to help with things like zoning and development, traffic management, policing, utility repairs and more.

So, let's take a closer look and see what's behind the hype and what metaverses are all about.

CHAPTER 1

What is a Metaverse and What is Not a Metaverse?

Many consider the metaverse to be the next world-changing digital communication innovation, similar to the internet and social media. Some futurists predict that metaverses will be used for everything from work to recreation. However, most people still aren't clear about the fundamentals so let's first establish what is and isn't a metaverse.

The simplest definition of a metaverse is that it's a virtual space that you can move around in and interact with. This virtual space can be completely digital, have digital elements displayed on top of real world objects on a smartphone screen or other display while other metaverses meld elements of the real and digital worlds and allow them to interact with each other.

Specialists have a much more detailed concept of these immersive, virtual worlds that involves a range of systems that are fully integrated, interoperable and available to anyone with a digital connection at any time in a seamless manner that bridges online and offline in real-time. Some even think that the metaverse will eventually operate in 3D and on all five senses, including simulated touch, taste and smell experiences, similar to the movie *The Matrix*.

There are also different visions of what the relationship between the virtual and physical worlds will be like with some seeing it as a fusion, some seeing it as spanning both worlds while others see virtual simulations happening in the physical world.

In the book Parallel Metaverses: *How the US, China and the Rest of the World are Shaping Different Virtual Worlds*, by Nina Xiang, the author combines the visions of metaverse expert Matthew Ball and others to list four key characteristics that are commonly seen as part of a fully developed metaverse of the future.

1) It's persistent, synchronous and live.
2) It's massively scaled without any cap to concurrent users.
3) It's interoperable.
4) It will be an all-encompassing, fully functioning economy.

All these factors, the variety of interpretations of them and the fact that many of them don't exist yet is why some people are confused or unenthused about the concept.

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"*I think the day Web3 was born was also the day Web2.0 and the web were born because before that, it was just the internet. For me Web3 is definitely not a place where you can sell a JPEG and make a million dollars or become a millionaire overnight. For me, Web3 is a much safer, decentralized internet where I can literally own a piece of the internet and choose what to do, and what not to do with it. In an ideal world, the concept of Web3 truly puts the power in the hands of users, and that's what makes it something to look forward to.*"

— Vishal Mishra, Co-founder,
Metaverse Simplified

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For the purposes of this book, unless talking about the future, we'll use a broad definition that describes some current virtual worlds since the fully integrated metaverse experts envision doesn't yet exist and is some way away.

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"*Please note that the metaverse doesn't exist yet anywhere. There's plenty of companies claiming they are making one, but they are all closed walled-garden worlds, not a true metaverse that is open, interoperable and connects people across the world. The metaverse is the next iteration of the internet we have been building for the last 40 years but in a 3D realm, vs. the text, picture and video web we have today. When it arrives in the next 5-10 years, it will encompass all facets of our lives from school to work to play and everything in between. And from now to then, there will be many rocky roads as the world and China figures out how to actually build such a solution and all the rules needed to properly operate it.*"

— Alvin Wang Graylin, China President &
Global VP of Corporate Development at HTC

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Another way to look at it is that we currently have a collection of metaverses. Each one is

a metaverse. In the same way that individual digital information boards were connected to form the world wide web and make the internet, some experts believe that, as technology improves, these metaverses will be interconnected and will form the metaverse.

We'll also talk about vital components of metaverses such as virtual reality (VR), augmented reality (AR), avatars, virtual currency and virtual goods.

Let's look at a few examples of well-known virtual spaces that are metaverses in the sense that people can control avatars to explore it, interact with it and communicate with others in it.

Metaverses like *Minecraft*, *Roblox* and *Second Life* are entirely online and similar to video games. Anyone with an internet connection can explore them using avatars. *Minecraft* and *Roblox* are aimed more at children and teens with a focus on players building things and creating games. *Second Life* is aimed more at adults who use avatars to socialize and date, participate in events, build things, shop, and trade virtual property and services. *Minecraft* and *Roblox* call participants players while *Second Life* calls them residents. These are considered metaverses

rather than games because there aren't set tasks, levels, objectives or manufactured conflict.

But not all aspects of metaverses will be fully online or completely virtual. A good example of augmented reality (AR) - when digital elements are displayed on top of real world objects using displays - is *Pokémon Go*. The game exploded in 2016 and was the first example of a global, cultural phenomenon that used augmented reality to enable people to see virtual items in the real world. Although it's a game, it's an example of how AR can be used in metaverses.

An example of metaverses that meld real and virtual worlds are smart cities and digital twins. A digital twin is a copy of a city that exists in the digital world with data fed into it from sensors and cameras in the physical world. This allows city managers and people in charge of infrastructure to observe events in real time, solve problems and plan future city developments using highly accurate models. Smart homes also offer the opportunity to control and interact with home appliances and systems virtually.

At the moment, there are lots of different metaverses owned by different communities

and companies with different user bases. One metaverse might specialize in business meetings and work tasks while another is a fun world that users explore and interact with.

Metaverses have three major components: hardware, software, and digital commodities. A work-based metaverse might be used as follows: When it's time to work, you log in. You view the virtual world through your computer screen, a large wall display or VR goggles. The virtual workspace could include meeting rooms, hangout spaces, games, and more. Some predict that in time, virtual workplaces will replace office or home workspaces, allowing people to connect, communicate, and explore as never before.

One way to determine if something is a metaverse is to ask yourself two questions: "Is this an immersive digital experience?" and "Does this platform have any real-world value?" The real-world value can be anything from meeting new people to earning money. If the answer to both of these questions is yes, then there's a good chance that it's a metaverse.

Some video games are metaverse platforms, but not all video games are metaverses. A metaverse is meant to have wider practical applications

than playing a game. If the purpose is just to play a game, then it isn't a metaverse, although the game might have a very rich metaverse-style environment.

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"*Web3 and the Metaverse are two different trends and produced by two different communities. Web3 is focused on blockchain tech and more focused on transactions. Metaverse is focused on XR (Extended Reality), 3D and experiences. They don't rely on each other but can potentially have added benefits when used together. In the future (5-10 years) when an interoperable open metaverse exists, blockchain technology could play an important role to enable the portability of assets and transactions across different worlds.*"

— Alvin Wang Graylin, China President & Global VP of Corporate Development at HTC

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What about social media platforms? Since most are not immersive and use current technology in expected ways - instant messaging, writing posts, showing images and video - they don't qualify. However, as they develop, metaverse elements may be incorporated into the social media networks of the future.

CHAPTER 2

Show Me the Money

This is the question on everyone's mind, including those in the know. What about the money? How much are metaverses likely to generate and how?

The truth is that no one really knows. Since things are still in their infancy and no one knows exactly how events will play out in the future, even big banks are only making tentative, qualified estimates.

It also depends how metaverse is defined and what is included in these forecasts. Estimates focussed on hardware companies will include sales of VR goggles, interactive joysticks and other tools. Numbers based on specific uses like surgical training will look at the software, hardware, services, staff and venues required for this.

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"*Gamification to incentivize customer participation and build loyalty will become very important. In five years. We'll see VR shopping become a real thing beyond what is being talked about now. Where customers can explore products and services in a 3D environment and make direct purchases. It'll allow businesses to showcase products and services in new ways and create richer experiences.*"

— Evelina Lye, Co-Founder of the UNTAM3D Web3 Community

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Internet analyst Brian Nowak, commenting in a report from Morgan Stanley, says, "We expect the metaverse to primarily operate as an advertising and e-commerce platform for offline products and purchases." The report suggests that metaverse advertising and e-commerce represents a potential 8.3 trillion USD market.

The bank also believes that metaverses could potentially unlock 5 trillion USD in consumer spending related to new immersive experiences. This is separate from money generated through the sales of metaverse related tech and gear like VR goggles. However, the bank says that these forecasts are dependent on the level of disruption that metaverses bring.

The metaverse total addressable US market

In US Dollars
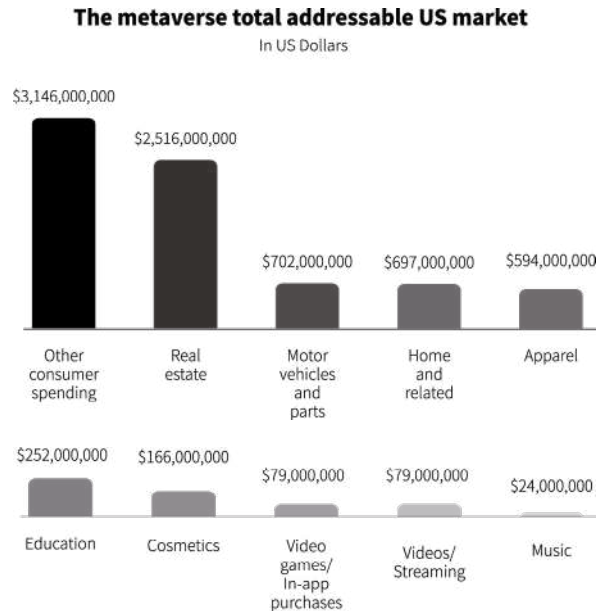
Source: Morgan Stanley, Metaverse: More Evolutionary than Revolutionary, Feb. 23, 2022, Company data, PWC, Bureau of Economic Analysis, Census Bureau, National Center for Education Statistics, Note: Concerts/live events and casino estimates are normalized
Total Addressable Market (TAM) - represents revenue opportunity at 100% market share, as if no competition exists

Estimates in a report from Citibank in April, 2022, stated that the metaverse represents an 8 to 13 trillion USD market by 2030 and the bank predicts as many as 5 billion users. Market consultancy International Data Corp reports that investment in the global AR and VR market was close to 14.67 billion USD in 2021. By 2026, they expect it to rise to 74.73 billion USD with compound annual growth of 38.5 percent.

So it depends very much on what people are measuring in their estimates and how markets change in the future. The level of transition depends on how and in which ways metaverses are used. For things to really take off, metaverses would have to offer a convenient experience far superior to what current technology offers and would have to offer it at a price point that would enable companies to profit.

On top of that, there are economic, ecological and geopolitical headwinds affecting even basic services in many parts of the world at the moment. The degree, location and duration of these conditions will also have a direct effect on technological progress.

The Virtual Asset Economy

In addition to the metaverse being used to advertise, market and showcase real items and experiences in the real world, it will become a thriving marketplace for virtual goods in the same way that many gaming platforms have.

Matthew Ball is an angel investor, former global head of strategy for Amazon Studios and author of *The Metaverse: And How It Will Revolutionize Everything*. According to him, about 60 to 70 billion USD was spent on nonfunctional virtual

goods in 2021. For reference, total global movie box office revenues hit a record in 2018 of 41 billion USD and were at 21.4 billion USD in 2021. He also said that in each year from 2018-2021, Fortnite had sold more virtual apparel than some luxury brands.

Roblox players can make money if other participants play the in-world games they've developed. Skilled *Minecraft* players are often paid by others to build or create virtual assets. It's not unusual for brands to create virtual goods for video games in China. One of the best known examples of this is clothing designed by Burberry that was worn by some key characters in the video game *Honor of Kings*.

These kinds of items are a huge area for development and can be sold as items, services or used as a means of brand promotion.

Some players also make money by creating metaverse-related physical merch, by streaming on Twitch or with metaverse-related YouTube channels.

Niche and Industrial Solutions

Another rich area of development for metaverses is education, training, simulation and industrial solutions. This is everything from flight simulators and emergency preparedness to surgical training and even training for accountants, factory workers, architects, engineers, couriers, healthcare staff and lab technicians who are taken through a simulated "day in the life" at a company.

The areas for investment are varied and the amount of money being generated by things like virtual assets is already large and set to get even larger as the metaverse develops.

CHAPTER 3

Different Views: How Are Metaverses Seen in China and the West?

China and many countries in the West have different views about the future of metaverses. This includes the views and approaches of policymakers, tech companies and the average person. This greatly impacts how these technologies are supported by governments, developed by tech companies and how they're adopted by the public.

Policymakers

Technology goals were included in China's most recent 5-year plan and in November, 2022, The Chinese Ministry of Industry and Information Technology (MIIT) published a plan to develop the virtual reality sector and integrate it with industrial applications. This was China's first national level policy on VR. The plan, recognizing that China is still currently dependent on hardware and technology from outside the country in some areas, also stresses homegrown tech development to avoid supply chain issues and to build tech resilience.

In January 2022, at least 10 Chinese cities and provinces, including Shanghai and Beijing, added metaverse-related industries to their economic development plans. According to a report released in August, 2022, by the Beijing Municipal Bureau of Economy and Information Technology, by 2025, the Chinese capital hopes to cultivate one or two leading virtual human companies with annual sales exceeding 5 billion RMB each, as well as ten other significant businesses with annual sales of 1 billion RMB each. Another Shanghai government project is to build a virtual, fully functional city hall.

As a report by Meaghan Tobin on Restofworld. org stated "Beijing's acknowledgment of the industry and the impact it might have in the future shows that China is looking ahead to set standards in a sector that few other governments have yet to acknowledge, let alone come up with a concrete plan for growth."

While cryptocurrencies are illegal in China, a lot of bitcoin mining still occurs there. According to statistics in a BBC report, China accounted for 75 percent of the world's Bitcoin energy use in September 2019, which had fallen to 46 percent by April 2021, around the time the government declared cryptocurrency transactions illegal.

China has very reliable digital payment solutions like AliPay and WeChat Pay. AliPay was developed by Alibaba early in its development because a reliable online payment system was needed for the company to see any progress. People in China are very used to these payment systems and others that work online and offline, like Union Pay so this likely presents no obstacle.

South Korea has been an early metaverse adopter and released its *Five-Year Plan for the Metaverse City* on November 4th, 2021. It intended to invest 3.3 million USD to make a Korean metaverse platform called Metaverse Seoul. On November 24th, 2021, Korea's top search engine, Naver, announced plans to create Arcverse as an ecosystem that connects the real world with the Metaverse. As of December, 2021, Naver Labs had taken 25,000 photographs of Seoul and compiled them for analysis and

as an archive of the city landscape. Metaverse ETFs have also been listed on the Korean stock exchange.

Japan has also made the metaverse a matter of public policy. Prime Minister Fumio Kishida stated plans to invest in the metaverse and NFTs and spoke of metaverse development as an area of economic importance when he took office in 2021. The government established a Web3 Policy Promotion Office in July 2022 to enact policies in regard to user protection and security and implements regulations requiring crypto exchanges to provide user data.

Spain has financial incentives to support research, development, and innovation involving Web3 and metaverse technologies for its *Spain: The Audiovisual Hub of Europe initiative*. Canada also has government initiatives like The Virtual and Augmented Reality Fund, which aims to support entrepreneurship in this emerging field. It was also one of the first countries to issue a report on the field in 1997, entitled The Future of Virtual Reality: An Internet of Intellect which set out specific recommendations in regard to the implementation of extended reality. Barbados also has a metaverse strategy and aims to establish a virtual presence with an

embassy in the Decentraland metaverse. In June 2022, Barbados announced plans to be a virtual country allowing individuals to purchase virtual land with real benefits on the island country.

Sadly, Tuvalu, a small island nation that is under threat due to rising sea levels, intends to construct a metaverse replica of itself feeling this may be the only way to preserve its culture, history and national memory.

Having said this, many governments don't engage in overt public promotion of new tech sectors like the metaverse and see this as an issue for industry, innovators and investors. There are also strong concerns about privacy and security, but little in the way of strong, concrete regulations and reliable enforcement. Many governments seem to take a wait and see attitude only regulating late and little. The Chinese government, by contrast, has 5 and 10 year plans and it actively backs and promotes certain development areas. It's much more willing to back tech initiatives and allow them to make mistakes, iterate, improve and rapidly develop.

Tech Companies
In her book, Parallel Metaverses, Nina Xiang discusses the different approaches that big tech

names like Meta, Microsoft, Apple and Google are taking.

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" *After reviewing what Meta, Microsoft, and Apple are doing in the metaverse, it's clear that existing tech companies are shaping their strategy according to their technological DNA and based on their existing technological advantages."*

— Nina Xiang, Author
of Parallel Metaverses

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Meta's goals revolve around making Oculus, its proprietary VR goggles, the lynchpin for a virtual platform that will enable it to accumulate users, scale quickly and maintain its position as a primary social media player and a dominant ad placement destination. Apple seems to be maintaining its focus on hardware and putting a metaverse into its walled garden of vertically integrated services. Microsoft is adding metaverse options to its Windows system, creating AR for business uses and adding it to its gaming offerings. Google retains a focus on search and is making AR content and services for smartphones and its AR glasses.

Google was one of the first tech companies to come out with a mass-market AR product with its virtually enhanced glasses, Google Glass. It didn't catch on with the public but now has business, education and healthcare applications. Interestingly, the glasses have major advantages over both VR goggles and smartphones in that they are lighter and easier to wear than VR gear, the wearer can still see their surroundings clearly, they are handsfree and respond to voice commands. They may find their way to wider usage in the future.

In China, metaverse, VR and AR development is strongly supported and guided by the government with the country's largest tech companies moving accordingly.

Tencent sees industrial, education, gaming and entertainment potential for the metaverse. Alibaba is incorporating its metaverse into its retail platforms with a strong social element in addition to shopping features. Huawei is a contributor in research, hardware and infrastructure terms and also has its own AR glasses. Baidu has already made what many consider to be China's first metaverse which can host concerts and has virtual conferencing solutions that allow 100,000 attendees.

The Average Person
Metaverses in the West, at least at the moment, are primarily for young people. This creates a massive generational divide. 51 percent of metaverse users are 13 or younger. 78.7 percent of users are 16 or younger and 83.5 percent are 18 and under. This is largely because of the dominance of big platforms like *Roblox*, *Minecraft* and Fortnite (a metaverse-style game) which are used primarily by this age group to play, create games, build virtual spaces and socialize. *Roblox* is seen as the largest of these and has about 230 million monthly active players.

Many adults don't understand what metaverses are, think they're video games, see them as childish or consider them a waste of time, especially now, with so many urgent economic and health challenges.

One of the most public metaverse projects in the West is from Meta. Formerly called Facebook, Mark Zuckerberg changed the parent company's name as it owns Instagram, WhatsApp, Oculus and other entities too. It was also a distraction from some very negative PR and part of its pivot to a metaverse-centric approach. Its metaverse is called Horizon

Worlds and it's seen as a major flop. Reviews and reports from those who've used it call it "glitchy", "sad" and "empty". In October, 2022, there were only a reported 200,000 users. Documents leaked to the Wall Street Journal showed that most users quit after the first month and more than half of Quest 2 headsets weren't used past the six month mark. According to Business Insider, the project has cost over 15 billion USD.

As of November, 2022, its bad performance had led to a 75 percent stock drop, resulting in approximately 800 billion USD in financial losses and 11,000 people losing their jobs. The headlines have created an atmosphere that has made the general public in the West very skeptical and prompted investors to avoid metaverse projects.

By contrast, a report from Bain found that 53 percent of younger metaverse gamers would prefer to inherit a vacation home in the metaverse rather than on a real exotic island. Gen Z can see the potential of metaverse platforms because they use successful ones like *Minecraft* and *Roblox*. A survey by McKinsey shows that Millennials and Gen Z expect to spend almost 5 hours per day on metaverse

platforms in the future. Gen X and Baby Boomers gave lower estimates.

These differences in expectations may be due to a lack of connection with big platforms that are populated by kids and teens. Older people's ideas are also tempered by the fact that they've seen many technology predictions fail in the past and lots of tech become hugely popular, only to fade away a few years later.

US consumers expect to spend almost four hours per day in the metaverse in five years.

Expectations of time spent in the metaverse in 5 years, by generation. In hours per day

Gen Z	Millennials	Gen X	Baby boomers	Average
4.7	4.7	3.6	1.8	~3.7
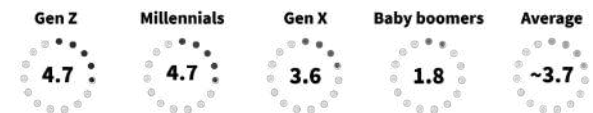
1 Question: In 5 years, approximately how many hours per day do you think you'll spend in the metaverse on an average day?
Source: McKinsey Metaverse Consumer Survey (Feb 2022).
McKinsey, Probing reality and myth in the metaverse
June 13, 2022

As time passes, younger generations will continue to use more metaverse technology and older generations will start to use it as it's adopted for more purposes outside of gaming and socializing. This time of slow development and adoption aren't as much of an issue in China. People in China will likely be adopting metaverses more quickly because of the Chinese government's strong support for technological

transformation and Chinese people's tendency to swiftly develop and adopt new tech.

China is one of the fastest-growing tech markets in the world. It also skipped several interim stages in the tech, entertainment and financial fields. China didn't really have credit cards, TV shopping channels, home video cassette recording and the early versions of home computers and video game systems. It jumped right into the newest and most convenient technology starting in the late 1990s and early 2000s.

Most people in China use smartphones to surf the internet, connect with others, make purchases, pay their bills, buy plane tickets, make appointments, hail cabs and much more. Smartphones are very much all-in-one devices that people rely on for everything.

A 2017 KPMG study found that 71 percent of Chinese people would prefer to lose their wallet rather than their phone and data from the China Internet Network Information Center (CNNIC) showed that by the end of June, 2022, 99.6 percent of Chinese people use a mobile phone and they spend 29.5 hours online every week. This rapid advancement also led to a nearly overnight cashless revolution. People in China even buy things using facial recognition soft-

ware, cementing the idea that cash is no longer a necessity.

The Ratio of People in Different Countries Who Feel Positively About the Metaverse

| Country	Percentage
Global Country Average	50%
China	78%
India	75%
Peru	74%
Saudi Arabia	71%
Colombia	67%
Mexico	65%
Turkey	63%
South Korea	63%
South Africa	62%
Brazil	60%
Argentina	58%
Singapore	57%
Chile	57%
Malaysia	51%
Poland	51%
Italy	46%
Spain	43%
United States	42%
Sweden	40%
Switzerland	40%
Hungary	39%
Australia	36%
Netherlands	35%
France	31%
Germany	31%
Belgium	30%
Canada	30%
Great Britain	26%
Japan	22%

Base: 21,005 online adults under the age of 75 across 29 countries, interviewed April 22- May 6, 2022
The "Global Country Average" reflects the average result for all the countries and markets where the survey was conducted. It has not been adjusted to the population.
Source: Ipsos, How the World Sees the Metaverse and Extended Reality, May 2022

Much of this is a result of the Chinese government's relentless tech drive. Due to the government's promotion and China's rapid digitiza-

tion, people in China are more optimistic about extended reality and metaverse technology. These attitudes showed up in a survey by Ipsos. When asked how they would describe their feelings about the possibility of engaging with XR in their daily life, 78 percent of people in China were somewhat or very positive. This was higher than in any of the other surveyed countries.

Chinese people' s leading concerns about the metaverse (2021)
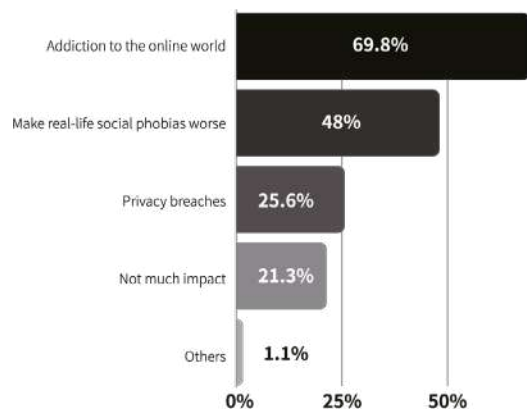
Source: Statista, Leading concerns for metaverse among Chinese netizens as of 2021

People in China also felt that metaverse and XR applications would significantly change the way people live over the next 10 years. They believed this more than respondents in other countries particularly when it came to virtual entertainment, movies and concerts and virtual

health resources like virtual consultations and remote surgery.

The areas where Chinese netizens have metaverse concerns are about addictions to virtual worlds, excessive time in virtual worlds creating social phobias in the real world and privacy concerns.

China's government and population are its greatest assets in rapidly developing and adopting metaverse tech with a sharp eye on industrial development and economic benefits. It's a given that China's metaverse will operate in parallel to any metaverses in the West in the same way the internet does today. The Great Firewall is expected to remain.

Although China has advantages in 5G and 6G network technology, and has a stake in the West's metaverse, mostly through Tencent's investments in gaming and tech companies outside of China, the country's VR hardware sector is heavily reliant on foreign microchips and China is in the same boat as the rest of the world in that it still has a long way to go before it can achieve the technological breakthroughs needed to fulfill the metaverse's true potential.

CHAPTER 4
The Chinese Companies Creating and Using Web3

Some of China's top tech companies, such as Tencent, Alibaba, Huawei, Baidu, ByteDance, NetEase and Bilibili are working hard on creating the country's metaverse infrastructure. While this is happening, smaller companies and brands are using metaverse elements and designs in a variety of ways. All are operating with an eye to regulations and a focus on practical approaches that benefit the wider economy and national goals. The country's massive market means that it's a very important metaverse mover and shaker.

1 Tencent

Tencent has released a whitepaper about their plans to launch their own metaverse. Co-founder and CEO Pony Ma prefers to use the terms "immersive convergence" and "quanzhen internet" when talking about the company's metaverse plans. The company sees it as a new industrial ecosystem that links virtual landscapes with the real world. He's also stated that he believes that it's the future of the internet and the next wave after the age of the mobile internet.

Top 10 Public Companies by Game Revenues (In US Dollars)

	Company	Revenue
1	Tencent	$8.121 trillion
2	Sony	$3.515 trillion
3	Apple	$3.137 trillion
4	Microsoft	$2.826 trillion
5	NetEase	$2.649 trillion
6	Google	$2.531 trillion
7	Electronic Arts	$1.767 trillion
8	Nintendo	$1.465 trillion
9	Activision Blizzard	$1.539 trillion
10	Sea Group	$.9 trillion

Source: Newzoo.com, Q2, 2022

As the world's largest gaming company, known for games like *Honor of Kings, League of Legends, PUBG Battlegrounds* and *PUBG Mobile,* it's no surprise that it intends to be a leading metaverse developer.

The company has a track record for investing early in concepts it believes in and committing to them over the long term. Its vision focuses on practical business solutions and prioritizes B2B solutions in areas like factory digitization, digital prototyping, remote machinery operation, virtual conferencing services and AI applications for banking. However, these aren't its only interests. It also hosted the huge online music festival TMEland.

The company is also an investor in the largest Western metaverse, Roblox, and formed a strategic partnership with the company in May, 2019 that includes a scholarship fund to sponsor 15 young Chinese creators to attend week-long creator camps at Stanford University. The dollar amount for their investment isn't known.

Tencent's presence in gaming extends even further. It has a 40 percent stake in America's Epic Games. In addition to computer games, Epic Games is the developer of Unreal Engine, a real-time, 3D computer graphics engine that plays a huge role in realistic, high quality video games and metaverses.

2 Alibaba
Taobao and Tmall
Taobao, part of the Alibaba ecosystem, also has a virtual social and shopping universe called Taobao Life that operates alongside its shopping platform. Its setup is similar to South Korea's Zepeto metaverse, but with a retail focus. People can quickly create and customize cartoon-style avatars of themselves, meet others online, collect points, use their points to shop for virtual items based on real branded items and decorate their virtual home. Purchases made on Taobao and Tmall increase their points in the game so it has strong shopping motivators as well as social and entertainment elements.

On Valentine's Day 2020, luxury brands like Canada Goose, Hugo Boss, Marni and Burberry made limited edition digital versions of items with virtual photo backgrounds for an in-universe campaign on Taobao Life. Couples could connect and pose for photos with the items and backgrounds. They could then save the images and post them to social media. The campaign

was especially fitting as it was difficult for people who didn't live in the same city to meet in real life due to Covid restrictions. It enabled people to get together virtually and also drove sales of the real versions of the featured products.

During Chinese New Year 2023, Taobao enabled AR and VR product views and fittings. It also allowed shoppers to place orders via ad screens in its livestream in the platform's virtual world. Packages would then be delivered to their home.

Given that a recent survey showed that people in China were most keen to see AR, VR and immersive elements in their shopping experiences, Alibaba is likely to play an outsized role in shaping the metaverse elements that the average person in China will experience.

3 Huawei

Shenzhen-based Huawei, which also makes consumer electronics, smart devices and solar products, is the largest telecom equipment manufacturer in the world and a leader in 5G development. It's heavily involved in building hardware and the communication infrastructure needed for metaverses in China and around the world but has faced obstacles in the U.S. due to trade restrictions imposed on the company. Even so, it aims to be a world leader in the metaverse space and it has the capabilities to make good on that goal.

In 2020, Huawei made a major breakthrough with the launch of Cyberverse, its AR map that allows users to experience an immersive 3D landscape that's connected to the physical world around them.

Then, in August, 2022, during Shanghai's Urban Digital Transformation Experience Week, the company announced that it was partnering with Fudan University and others to create China's first metaverse research institute. Shanghai is a metaverse and virtual reality innovation center and one of China's key tech hubs.

Edge computing is a method for distributing computing power so that computation and data storage happen closer to the physical location where it's needed, improving response times and saving bandwidth. It's one of the enabling components of increased digitization and immersive virtual universes. Out of all the large global tech companies, Huawei has the highest number of edge computing patents.

The company has also developed sunglasses-style VR glasses that can connect to smartphones and Cloud XR services that enable cloud-based abilities like large-scale 3D mapping, adaptive spatial computing, and digital human rendering.

Huawei is in fourth place in the metaverse patent race behind LG, Samsung and Meta. Notably, it's ahead of Apple.

4 Baidu
Search engine giant Baidu has created what many feel is China's first metaverse, Xi Rang, or The Land of Hope. The first location built in this virtual world is called Creator City. It has a virtual arena that boasts the ability to host virtual conferences with up to 100,000 attendees with real-time, realistic audio. The arena resembles the Senate Chamber from the Star Wars movies, with large floating seating areas arranged around a central stage.

Baidu used its metaverse app, which was released on December 27th, 2021, to hold its annual developer conference. Xi Rang also features areas for art exhibitions, buildings from Chinese mythology and a diving pool where

avatars can compete against others in a virtual championship.

Plans for Xi Rang include entertainment, gaming, education, conferences, exhibitions and advertising but it's currently still in the early stages of development and its initial launch experienced a variety of glitches and latency issues.

5 NetEase
The second-largest video game business in China, its tech strengths include proprietary 3D game engines.

NetEase released the Yaotai app for immersive virtual meetings in August, 2022. By then, approximately 100 virtual conferences had already been held on the app by institutional customers, which includes universities and large corporations. NetEase is stepping up efforts to market Yaotai as metaverse-related service competition heats up.

The head of NetEase Yaotai, Liu Bai, stated in an interview, "Yaotai's technological foundation is consistent with that of our games, so we can use many of the existing capabilities of NetEase Games."
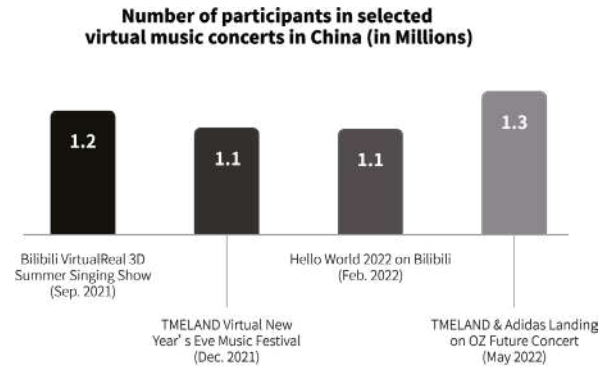
6 ByteDance

In April 2021, ByteDance, the company behind the short-form video app Douyin and its international equivalent TikTok, invested 100 million RMB (approx. 13.7 million USD) in Code Qiankun, a metaverse-related company. Then in June 2022, ByteDance purchased Chinese VR start-up PoliQ. PoliQ is the company behind social site Vyou, which allows users to design their own avatars.

7 Bilibili

The founder and CEO of Bilibili, Chen Rui, stated that the video streaming and gaming platform had excellent potential to develop metaverse solutions. Bilibili, which has a much younger user base than many of China's other video platforms, is testing out its new blockchain solution UPowerchain as its maiden entry into the metaverse. UPowerchain is a digital native community designed for new applications, culture, gaming, and digital assets as well as community governance.

Bilibili has also been on the forefront when it comes to staging large virtual concerts in China. These are the bigger tech companies that are making an impact. However, there are a few lesser known companies that are contributing to China's metaverse offerings.

Number of participants in selected virtual music concerts in China (in Millions)

Bilibili VirtualReal 3D Summer Singing Show (Sep. 2021): 1.2

TMELAND Virtual New Year's Eve Music Festival (Dec. 2021): 1.1

Hello World 2022 on Bilibili (Feb. 2022): 1.1

TMELAND & Adidas Landing on OZ Future Concert (May 2022): 1.3

Source: Statista, Building the Chinese Metaverse, Dec, 2022

YueHua Entertainment

Yuehua Entertainment debuted a virtual girl group called A-SOUL on November 23, 2020. In December, their single "Quiet" was released. They have gone on to become hugely popular and on January 28, 2022, they joined the Olympic Games interactive music carnival. The band members do regular livestreams and Q & As on Bilibili.

The band is brought to life by anime style images that are mapped onto information from motion capture and facial tracking apps that track a human performer. Their fans are mostly

young people who range in age from teens to those in their early 30s who grew up with strong anime affinities. For them this is the next phase for animation.

Ranmai

In May, 2021, Shanghai's Ranmai Technology, in partnership with Tokyo's Aww Inc., created Ayayi, which they call China's first digital human. She's remarkably realistic. Her skin texture adapts to varied lighting and shadows using cutting-edge technology to realistically mimic a real human in photos. Her persona is also built around the metaverse as she is billed as a fashion brand manager, NFT artist, and digital curator. She released mooncake NFTs online for 2021's Mid-Autumn Festival.

When she made her Xiaohongshu debut, the post garnered roughly 3 million views and she gained nearly 40,000 followers in a day. Given this, it's not surprising that she's been in marketing campaigns and events for big brands like Disney, Guerlain, L'Oréal, Louis Vuitton, Sandro, Bose and yogurt brand Anmuxi.

The technology for Ayayi is from Aww Inc., a Japanese company that specializes in hyper-realistic virtual idols. It has already created

two well known virtual personalities in Japan, Plusticboy (aka Zinn) and Imma.

Ayayi isn't China's only virtual idol. Other well-known digital stars are Liu Yexi, Reddi, Xiao Yang, Ling and Luo Tianyi. They've been created by a variety of companies. China's digital idols are becoming more sophisticated, realistic and operable in multiple formats. They can appear as characters in videos, avatars in online worlds, models in photos, partners in livestreaming sales and holograms during offline events.

MiHoYo

MiHoYo is the company behind the anime role-playing game (RPG) Genshin Impact. MiHoYo's virtual world, launched in early 2022, is called HoYoverse. The company's co-founder and CEO, Haoyu Cai, said that it's aiming for an immersive virtual world that integrates anime, games, and entertainment.

The company is also known for its partnership with Shanghai's Ruijin Hospital, helping create a lab in the hospital's Brain Disease Center which is researching clinical applications of brain-computer interfaces and their health applications. For example, they're looking at its efficacy in terms of treating depression.

In addition to these companies, Chinese consumer brands like Moutai and Florasis may not have metaverses, but they're making use of metaverse styles, approaches and elements in their marketing.

Moutai

The prominent Chinese liquor brand developed a game app in collaboration with NetEase as the foundation of their metaverse debut. Users can create their own virtual alcohol in the game's universe. The app quickly rose to the top of the list of free iOS apps after its January 1st, 2023 release. In just three days, it amassed more than 1 million registered users.

Users earn points by accomplishing objectives in the game, which they can then use to purchase limited-edition Year of the Rabbit NFTs, which many Chinese internet users consider to be an excellent investment.

Florasis

Chinese beauty brand Florasis already had a virtual persona named Xiao Wanzi that made contact with the brand's customers and private traffic through the brand's WeChat account. The character is an avatar with its own account that represents the brand.

The virtual character shares her daily routine, mood, and skincare experiences in WeChat Moments. WeChat users connect with the account and feel like they're making contact with a real person. Various staff members operate the account with a focus on customer-centricity. The persona responds quickly, in a personal manner and behaves like a friend as it assists customers and promotes the brand's products.

The brand added a digital idol named after the brand in June, 2021. The digital character personifies the brand and its emphasis on traditional Chinese culture and beauty. It also helps to avoid the pitfalls of using influencers or celebrities as brand ambassadors.

There had been controversies surrounding high profile influencers and celebrities in recent years because of personal issues, behavior or financial irregularities. Having a brand-controlled virtual influencer allows the brand to have greater control and avoid these kinds of problems. The brand can also deploy their digital star online, in videos, in livestreams or even offline by using holograms or lookalikes to play the role.

These are just some examples of approaches to the metaverse in China. They encompass anime, virtual idols, business solutions, health research, gaming, marketing and more.

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"*China has the potential to be the first major market to create a regional metaverse that has true openness and interoperability and the government has the ability to enforce common standards. The rest of the world can learn from the development of China's metaverse, which should accelerate the global metaverse we're all seeking.*"

— Alvin Wang Graylin, China President & Global VP of Corporate Development at HTC

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Are you interested in learning more about metaverse opportunities in China? If you're after custom insights about China's metaverses and want to know what's possible with fascinating real world examples, ChoZan can get your team up to speed. Contact us at www.chozan.co to schedule a consultation.

CHAPTER 5

The Western Companies Creating and Using Web3

The First Metaverses
The first metaverses were developed in the United States and Europe. The earliest examples are Active Worlds and The Palace. These 3D-style virtual spaces for socializing, creativity and games were developed in the United States and released in 1995. Interestingly, though not widely used today, both are still in operation. So it's taken 27 years for the concept they were built around to finally gain mainstream acceptance and become a buzzword.

After them, the next big virtual world was Habbo Hotel. It was launched in 2000 by Finnish

company Sulake, which still owns and operates it under the name Habbo.

It was designed with a toylike, pixelated aesthetic and avatars that look like Lego characters. Participants decorate online rooms, build online spaces, design and play games and socialize. This clearly had a strong influence on modern metaverses like Roblox and Minecraft, which are extremely popular. The brightly coloured, semi-retro, toy aesthetic also makes these online spaces particularly attractive to children and teens.

Due to the large number of young players, Habbo attracted a dark element and an exposé in the UK in 2012 revealed to parents, who were largely ignorant of the dangers, that there were predators on the platform. The platform was also known for financial scams because of its in-world virtual currencies. The platform did little to remedy the problems which led to a crash in the platform's huge userbase as well as investors withdrawing support. It had a total of 316 million registered avatars from 150 countries at one point but now has about 800,000 users.

Second Life was another early player in the metaverse space. It was developed by San Francisco based Linden Labs and released in 2003. It's still in operation today and has about 1 million monthly active users. It's intended for users over the age of 16. It's one of the most developed virtual worlds and is the closest to what many envision when they think of a metaverse. People control avatars that can roam through the virtual space, buy land, build homes, socialize, play games, shop and more.

It has its own currency, the Linden Dollar (L$), which can be exchanged for real world currency and has expanded into the education, workplace and political realms with educational institutions, remote conferencing abilities and the presence of a few embassies on the platform. It too has weathered many technical issues and controversies over the years as authorities grapple with how to optimize, regulate and police online spaces.

Big Tech Companies
Many believe that the United States is the leader in terms of the core technology required for the metaverse, prominent companies investing money in the metaverse and a robust industrial

supply chain that a powerful metaverse ecosystem could be built around.

As Nina Xiang details in her book, long before Meta's naming and the announcement that made it a buzzword, Mark Zuckerberg had VR and metaverse visions. This is part of what was behind the company's 2014 purchase of Oculus as he felt that "immersive 3D content" was the next frontier.

To this extent, it has invested a lot of money and established departments like its Reality Labs, to develop solutions for the metaverse. It's also invested in hardware with its Oculus goggles and its smart glasses, Ray-Ban Stories, developed in conjunction with Ray-Ban.

However, it has experienced huge problems along the way which are detailed elsewhere so it's unclear what the end result of its huge efforts and enormous monetary investment will be.

Apple is still seen by many as a hardware brand even though its focus began to switch around 2016 to that of a services company. It's also know for being secretive about its plans. To that end, there is speculation and rumour that it's

been developing a VR headset and AR glasses that it will enveil in the next few years. It has the advantages of proprietary chips on the hardware side and the App Store as its walled garden for VR, AR and XR experiences.

Google, which often refers to Web3 and metaverse concepts as "ambient computing", was one of the first big Western tech companies in this race with its Google Glass AR glasses. The company is already making AR content and modifying applications for a more immersive experience. For example, in alignment with Google Maps, it's created Live View which can indicate directions in the real world as you point your smartphone camera at real places or on a mini map at the bottom of your screen.

Microsoft is a company that seems to have a variety of VR, AR and metaverse projects going. It's invested in hardware with its Hololens MR smart glasses for enterprises. The company had secured a 22 billion USD contract for modified versions of the headsets with the American military. There have been several reports of the project's troubled path that included delays, employee protests and pricing questions, but it seems that deliveries had begun in September, 2022.

The company has a huge stake in gaming with its XBox division and ownership of a roster of game development studios. In March, 2023, it was expected to get EU approval for its acquisition of Activision. It had faced scrutiny due to antitrust rules but an offer of licensing deals to its rivals appeared to clear the way for regulatory authorization. Microsoft also owns one of the largest functioning virtual worlds - Minecraft.

As the next era for its Teams work collaboration applications, it has designed Microsoft Mesh which aims to enable holographic virtual collaboration across multiple devices.

Modern Metaverses in the West

While big tech companies like Apple, Google, Microsoft and Meta (formerly Facebook) are in the process of rolling out their metaverses, the most popular ones in the world right now are ones that many people don't think of as such: Roblox, Minecraft, and Fortnite. Roblox is the largest metaverse and hosted an average of over 230 million monthly active users in Q2, 2022. Minecraft had about 165 million monthly active users, and Fortnite had around 85 million MAUs on average. The pandemic was responsible for a surge of users on these metaverses as a result of the suspension of in-person schooling in many

countries. Students had limited opportunities for face-to-face socializing so they migrated to online metaverses. As a result, user numbers may decrease in 2023 as offline schooling and interaction return.

Monthly Active Users for the Top Western Metaverses in 2022

230,000,000 — Roblox
165,000,000 — Minecraft
85,000,000 — Fortnite
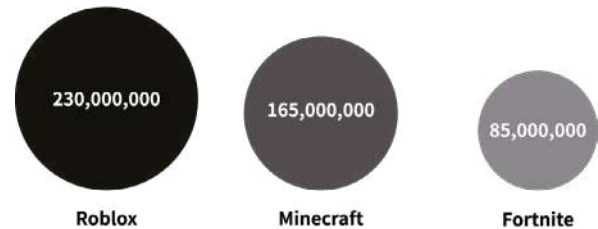
Data from Metaversed

The design of Roblox and Minecraft are very much inspired by Habbo. The world and avatars are toy-like, bright, stylized and have a low-fi geometric look. By contrast, Fortnite is more like a traditional video game and some would argue that it isn't a metaverse at all.

All three platforms are highly attractive to children and teens and dominated by younger players. Unfortunately, the troubling issues that affected Habbo have also affected these sites. There have been particular problems with Roblox as it has an in-world currency called Robux so financial scams and children working

on online projects for little pay without legal protection has also been prevalent.

Roblox was first released in 2006 and Fortnite was launched in 2017. While Roblox and Fortnite are owned and operated by companies in the United States, Chinese tech giant Tencent owns a large share of both. Tencent owns 40 percent of Epic Games, the creator of Fortnite, and 49 percent of Roblox. While Tencent isn't the primary stakeholder for either, these significant holdings mean that it has a massive stake in the West's largest metaverses. It also gives Tencent insights about how large metaverses operate in the West, which will be useful as it develops its own metaverse solely for China.

Minecraft was originally developed by Swedish video game company Mojang and released in 2009. Mojang, along with Minecraft, was acquired by Microsoft for 2.5 billion USD in 2014 and is still owned by them.

A Chinese version of Minecraft became available in 2017 through a licensing agreement with NetEase. It's separate from the global version and has some different features. The China edition had 600 million players as of October 2022.

Other large, well-known metaverses include Avakin Life, IMVU, Rec Room and Poptropica, which each focus on different areas. For example, IMVU is for adults and mostly used for virtual online dating while Poptropica is for young students and features educational games and problem solving adventures.

Meta has a metaverse called Horizon Worlds. Although many people know about this metaverse, it's for all the wrong reasons as it only has about 200,000 monthly active users and has been the focus of much criticism due to a poorly executed rollout, controversies and a lack of vision.

Western Retail Brands Making the Most of Metaverses

Nike
Sneaker brands are typically first out of the gate when it comes to using innovative ways to reach customers, market products and entertain. They also cater to young, early adopter consumers who like to collect products so they need to meet them where they live. These days, they live online. So tech-forward brand Nike partnered with Roblox.

It created a virtual world called Nikeland within Roblox's platform from November 18th to December 7th, 2021. The event is still receiving updates despite the original run of the event being over. It featured Nike buildings and places to have snowball fights, play tag or play dodgeball. Nike could use the venue to preview products, allow Roblox users to co-create items, see what kind of virtual items are popular with consumers and sell branded virtual items.

In December, 2021, the brand bought virtual sneaker designer RTFKT, which is pronounced "artifact". Reports said it spent 11 million USD on the creation of virtual sneakers that it calls cryptokicks. In April, 2022, a pair of particularly rare cryptokicks sold for 45 ETH, or around 130,000 USD at the time.

The brand avoids the term "metaverse" so when it launched .swoosh (dot swoosh), in November 2022, it referred to it as its Web3 marketplace platform. It plans to use the space to market and sell digital collectibles, co-create real and virtual products with consumers, enable product personalization, facilitate the sales and delivery of physical products and curate experiences online and offline.

The brand's strong online presence and its successful SNKRS app also helped it out during the pandemic when offline retail suffered. The company plans to be 40 percent digitally based by 2025.

YSL Beauty and Prada - Token Gates and NFT Collections

Token-gating is an increasingly popular Web3 tool that restricts access to specific spaces, events, products or services to the holders of particular blockchain tokens. The most common channel for NFT transactions is the Ethereum blockchain so users must have virtual wallets that can store Ethereum blockchain transactions and cryptocurrency. This allows brands, particularly luxury brands, to offer perks to select customers and the Web3 community via direct digital access.

L'Oréal Group brand Yves Saint Laurent Beauty launched a token-gated page in June, 2022 to coincide with VivaTech, a major tech conference in Paris. VivaTech visitors and YSLBeauty Twitter and Instagram account followers could claim an NFT that would unlock services and events that year. The page will serve as a hub for the brand's Web3 offerings. To enable access for those who are still learning about Web3 and

tokens, the brand worked with a provider to develop the YSL Beauty Wallet app.

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" *We can leverage Web3 to build communities, create interactive and immersive experiences in the metaverse and design NFT-backed loyalty or incentive programs, the way Starbucks is doing with the Starbucks Odyssey experience.*

An example of a new-age brand is GMGN Co., the first Web3-based FMCG running on a DAO with 100+ community owned brands. Imagine more than 1,000+ community members/super-fan or NFT holders contributing to product packaging, designs, ads, research and even brand design ideas, truly making a brand their own. I think that's where the magic will happen. "

— Vishal Mishra, Co-founder,
Metaverse Simplified

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Prada took a similar approach with an NFT collection connected to its limited edition Time-capsule products. It also started a dedicated Discord channel, Prada Crypted, in June 2022. Timecapsule originally launched in December, 2019 in Europe. It presents a new product on

the first Thursday of every month that comes with uniquely designed logos and serial numbers. They're on sale for 24 hours only. These items now come with an NFT and people who previously purchased Timecapsule products can also get the NFTs linked to their product.

McDonalds and Panera
In February, 2023, McDonalds filed trademarks to sell virtual goods, services and restaurants. The filings were noticed by Josh Gerben, a trademark lawyer who tracks new filings and posts about them on social media.

The filings included options to operate virtual restaurants featuring actual and virtual goods and operate virtual restaurants featuring home delivery. This allows the company to set up virtual restaurants in online worlds and control its branding should others infringe on their trademark or copyright.

It also means that they can create online ordering services for real food inside virtual worlds. So if someone is exploring an online world, they can go to the virtual version of the restaurant and get food delivered to their home.

Bakery Panera Bread made similar filings a few days earlier that covered virtual food and beverage items, NFTs and actual, deliverable goods.

McDonalds also filed for trademarks for actual concerts streamed online and virtual concerts. The concert option would allow the brand to sponsor entertainment events and provide entertainment services in its virtual restaurants.

Metaverse Concerts
Speaking of concerts, singers and entertainers are making use of virtual worlds. The first band to perform a concert in a virtual venue was Duran Duran, which performed a concert on Second Life in 2006. In the intervening years, the technology and ways that concerts are presented online have progressed and audiences have grown.

In February, 2019, Fortnite held an in-game concert featuring the artist Marshmello. This live concert had over 10.7 million concurrent viewers, much larger than the most attended in-person concert but not yet rivalling the viewer numbers for widely broadcasted live events like the Super Bowl Halftime Show, which can have audiences of over 100 million.

In August, 2021, Ariana Grande also had a concert on Fortnite which was designed as a series of mini games, many with cooperative elements, that led attendees on a journey through the platform and a series of experiences with her music and virtual performances integrated. The concert was only available for a limited time building in a scarcity aspect.

As time goes on, even more formats and presentation methods will emerge and the idea of what a concert is will change with it.

This is just a sampling but it gives you a sense of the companies currently involved in metaverses in the West and how they are using them.

CHAPTER 6

Key Non-Business Uses in China

When it comes to metaverse, Web3, AR and XR offerings in China, they have spread into a variety of areas beyond the retail realm. These tools have particularly been used for smart cities and urban digital twins, cultural and historical preservation, healthcare, education and more.

Smart Cities and Digital Twins
To start with, what are smart cities and digital twins?

Smart cities use technologies like the internet of things (IoT), big data, 5G mobile internet, remote sensors and AI to collect city data and connect key services with each other and city authorities. This means that things like

traffic, electrical wiring and water pipes can be monitored continuously and repair crews can be sent out or automatic alerts can be sent out via social media or other channels if there are any problems.

Digital twins are digital duplicates of a location - usually a city or part of a city - that replicate the real place in digital form. These can be used in a variety of ways. Staff at municipal services, hospitals, construction firms, urban planners, law enforcement, weather forecasting and other groups can assess, coordinate, organize and keep track of fast-breaking events. These digital versions can also be used as part of a metaverse where people can use avatars to pay their electricity bill, attend virtual educational presentations or as a way for people to connect with their workplace remotely.

China is very committed to smart cities and digital twins. There are specific, concrete plans and they are being executed. Smart city development was included in China's 14th Five Year Plan, which covers 2021 to 2025 and the country had its 15th China Smart City Conference from September 28th to 30th, 2022 in Beijing. The conference was sponsored by major government organizations related to trade, surveying

and mapping, remote sensing and smart cities. China's e-government service platform already has more than a billion users and offers more than 10,000 services.

While the focus is on first tier cities like Beijing, Shanghai and Shenzhen, with some feeling that Shenzhen is leading the way in terms of digital governance, a Deloitte article from 2018 said that even then, there were already about 500 smart city pilot projects in China.

The next iterations of this concept are referred to as super smart cities. These are the smart cities of the future which will be hyper-integrated, experience little latency, operate in real-time and will be used in one way or another by the majority of the population. Apart from developing the cities of the future and enabling streamlined management of some of the largest urban areas in the world, the stated aim is to improve the quality of life of the average citizen.

The challenges they bring revolve around data security, privacy concerns, digital inequality as well as competent oversight, planning and constant maintenance.

Cultural Restoration and Preservation

China is an ancient nation with a long history and it is undergoing huge changes. Due to a number of factors, such as environmental change, wars, urbanization, pollution, the world's largest population and rapid industrial and societal shifts, China has lost some of its ancient relics and faces challenges maintaining and protecting some that it still has, many of which are UNESCO World Heritage sites. Many Chinese people also don't have the ability to easily see the country's antiquities in person. Using digital means to preserve historic artifacts and buildings is part of the nation's conservation and education strategy.

Tencent and The Palace Museum (often referred to as The Forbidden City in the West) have been cooperating on a project to digitally document its assets. Xinhua reported in September 2019 that the Ministry of Culture and Tourism said that the partners had "stepped-up strategic cooperation for building a Digital Palace Museum in the next three years."

By July 2021, the museum capped the number of daily in-person visitors at 30,000 and upgraded its digital services by adding virtual tours that allow 360 degree views. It also added

20 livestreamed courses over the summer. The museum's WeChat mini program enables these services. The mini program recorded 23 million online visits in the first year of its launch, said the museum's deputy head of IT, imaging and digital media.

In another example, there were "Cloud Temple Fairs" in 2023. Around the Chinese New Year and Lantern Festival holidays, there are often temple fairs, which are considered part of the country's intangible cultural heritage. In 2023, people could attend some of the country's more famous fairs via avatar.

The Yuandian Temple Fair in Beijing is one of the most important temple fairs in China. A WeChat mini program enabled visitors to experience the fair in a virtual metaverse. Players could do traditional fair activities like making candy, answering lantern riddles and setting off fireworks. Another online temple fair allowed avatars to do calligraphy, watch lion dances, walk on stilts, shop at a market and listen to opera.

These are only a few examples and this trend to digitize, expand access and enable new expe-

riences with cultural and historical elements is happening across the country.

Surgery and Healthcare

As mentioned earlier, tech company MiHoYo has partnered with Shanghai's Ruijin Hospital to create a lab in the hospital's Brain Disease Center that will research remote medical services as well as brain-computer interfaces and their health applications.

In another example of how metaverse tech is being used for medical purposes, the thoracic surgery team at the National Center for Respiratory Medicine in Guangzhou, led by Professor He Jianxing, has used augmented reality imaging technology to improve the efficacy and safety of lung surgery while protecting tissue and reducing pain for patients.

After years of research, the hospital developed a method to produce a mixed reality representation of a patient's lungs that allowed for pinpoint accuracy when surgery was required, especially in areas that were surrounded by other vital tissue.

CT scans combined with 3D imaging software allowed the team to produce a highly detailed

virtual version of the patient's lungs. Augmented reality tools and displays then allowed doctors to experience virtual X-ray vision so they could see detailed images of the patient's lungs before and during surgery while avoiding the encumbrance of 3D goggles.

Digitized Factories

This is another area that Chinese authorities are strongly committed to. According to market research by TrendForce, the industrial metaverse is expected to drive the global smart manufacturing market to over 540 billion USD by 2025.

The Chinese government is currently rolling out favorable policies. In November, 2022, the Ministry of Industry and Information Technology and several other ministries jointly released a five-year plan (2022-2026) covering the development of industrial applications for virtual reality tech.

In 2022, Vice Minister of Industry and Information Technology Wang Jiangping said, "The ministry will seize the window of opportunity in the VR industry to promote its integration with the real economy."

In one example of how tech companies are working with industrial partners, Tencent is working with Ruitai Masteel New Materials Technology to build a digital twin factory so that the company can do virtual testing and simulations before introducing new products to its production lines.

In the oil and gas sector, some plants are quite remote and it can take a long time for trained personnel to reach the plants if there are any problems. Plants like the Siping Oil Plant, Songyuan Oil/Gas Plants and the Zhangwu Oil Plant now use VR solutions to cut down on the time it takes for problems to be dealt with. Instead of travelling over 300 miles and taking up to 3 hours to reach the plant, on-site employees wear AR glasses while doing field inspections. Engineers in the Changchun headquarters can see real time images from a first person perspective and can communicate with the on-site workers wearing the glasses. The inspections can also be recorded and stored in a database and remain traceable.

Companies in the industrial and manufacturing sector are also increasingly using AR and VR solutions and metaverse simulations during job training. The companies find that trainees learn

faster and better this way, saving on training time and expense while making employees feel better prepared for their new jobs.

Education

Digital solutions have been used in educational environments in China, as have virtual and digital course delivery, particularly when strong pandemic-related restrictions were in effect. What is even more telling, however, is that China's first university level metaverse major program was set up in 2022.

In September, 2022, the Nanjing University of Information Science and Technology's Information Engineering Department renamed itself the Metaverse Engineering Department. The department is in the university's School of Artificial Intelligence which is part of its School of Future Technology. This makes it China's first university department named after the metaverse.

Dean of the School of Artificial Intelligence, Pan Zhigeng, said that the department was established because the metaverse requires a variety of technology so the university's goal is to train talent who have experience with and knowledge of these diverse and integrated areas.

A 2022 report by zhaopin.com indicated that metaverse jobs had increased by 16.6 percent from 2021. Indicators also showed that metaverse-related positions in manufacturing had grown by 22.3 percent since 2021. While this is true, the tech sectors in China and the West are experiencing turbulent times and there have been large tech company layoffs in both countries so there are still challenges in this area.

These are just some examples. China is also ramping up its metaverse capabilities in tourism, job training, construction, architecture, supply chains, real estate and other areas. What is clear is that this is a clear priority for the Chinese government and will continue to be for some time.

CHAPTER 7

How Can Your Business Use Web3 and Metaverses?

N ow we know more about metaverses and Web3 elements, but does any of this apply to your business? It does, but just how it applies and what your business can do will vary. The environments and tools of Web3 and metaverses will be used differently by a small or medium-sized business that sells consumer goods and a large corporation that manufactures vehicles.

The metaverse has wide scope and a variety of areas that businesses can target. This includes infrastructure, applications, platforms, content and hardware across social networking, gaming, healthcare, manufacturing, education, retail and more.

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"*New revenue streams and business models present a whole new level of possibility for brands to reach their customers and fans. It's not just about monetary conversions. It's another touchpoint and becomes a layer of experiential, reimagined and immersive experience to further enhance a brand's story. Co-creation and community activation will play a significant role in delivering to the community "*

— Olivia Lee, Founder of Livvium, Web3 Strategist and Digital Fashion Collector

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Big Business
Large businesses not only have greater scope but also greater responsibility. Even though we don't yet, and may never, have a full-fledged, interoperable metaverse, the internet is heading in that direction, so there are two issues that large businesses need to deal with.

Firstly, there's a need for future proofing. If no thought is put into the potential impact of technological advances now, large businesses face huge risks of being left behind or rendered redundant by upstart competitors with foresight and tech savvy.

Secondly, exploring this area in a practical, knowledgeable way enables a business to establish or bolster a position of industry leadership.

For large companies, concrete action, like establishing a designated Web3, metaverse or future tech team, would be a wise first step. The next challenge is to ensure the team is stacked with capable talent. This is difficult as this area is still very new and is developing right in front of our eyes.

After that, it's vital to ensure that this team is working on functional solutions for the business related to the metaverse. This includes things like Web3, AR and VR experiences and omni-channel offerings that merge online and offline products and services.

What kinds of issues would a team like this have to examine? Apart from obvious issues such as what products and services the company offers and how they're delivered, they'd need to look at things like how the company conducts its CRM, how the company conducts marketing and sales campaigns, how they deliver customer service and even how internal communication happens within the company.

Large firms could also invest in or acquire metaverse related startups dealing with VR hardware, content creation, gaming, education and training, applications or realistic avatars.

Nike, Warby Parker and China's Virtual Try-on Filters

A simple example from apparel and glasses retailers that opens up the world of online sales for them are apps that allow people to see virtually what a pair of glasses, shoes, makeup or an item of clothing would look like on them.

Warby Parker has an online app that facilitates the sales of glasses online, something that many people didn't think was possible. The app shows quite accurately what different glasses look like and can even serve clients that have challenging prescriptions. Its app is also capable of taking certain measurements - like the distance between a person's pupils - using the person's smartphone camera.

The Nike Fit app uses AI and AR in a similar way. After allowing the app to access your phone camera and following the instructions, you can choose a pair of shoes and see what they would look like as you move your feet around in front of your camera.

This technology has been around since 2013 when filters were available on social media in the West and in China. In the West, apps that allowed people to see their faces with flower crowns, animal ears and makeup effects were used for fun photos shared with friends. However, even at this early stage, makeup filters were already being used by beauty brands in China to sell products and enable virtual try-ons.

McLaren

VR has been used by automotive companies like McLaren, for years as part of their design process. Car designers have donned VR goggles and used handheld controllers to refine the dimensions and look of vehicles they plan to manufacture in the company's virtual design space. The technology allows for fast yet meticulous prototyping of their high performance cars. These techniques are used by engineers in other fields and are also used by architects, construction companies, store designers, retailers, interior designers and more.

This technology can also be used in internal meetings with colleagues, clients, distributors, factory workers, construction workers and manufacturers to help them quickly and clearly

understand a product's capabilities, construction, requirements and specs.

As the metaverse develops, this can expand to become a virtual space with different access areas for customers, dealers, manufacturers and more. Customers could use an avatar to virtually see what the inside and outside of a vehicle look like, get instant stats about it or use an accurate scale avatar to see what the leg room is like and how they would fit in the driver's seat. They could then book a test drive with a local dealer.

Something like this isn't just a service for clients that can help them decide which vehicle to buy, it's something that many future customers will expect, having grown up playing highly realistic video games, or using virtual worlds like Minecraft or Roblox. It can also be a part of a company's CRM system and additional privileges can be provided to VIP members.

BMW

BMW's Individual 7 Series Augmented Reality app allows users to customize certain models and view their results as a full sized augmented reality model of the car. The app also allows people to import car models for viewing from other BMW apps. A company could have apps

that are only available to members or have certain services within an app available only to current BMW owners or VIPs.

One can only imagine that the next step for apps like this is that customers will be able to send their customized models to a design or manufacturing team for the car to then be paid for, produced and delivered. And it could all be done within a virtual world. That's still down the line but creating these apps and capabilities now means that as metaverse technology develops and more options become available, BMW will be able to seamlessly add these into its current offerings. It also allows BMW to reach a new group of consumers and to stake a position as an industry leader.

Small and Medium-sized Businesses
Due to budget and resource constraints, options will be more limited for smaller companies. The goals will also be different from those of larger businesses. For small and medium-sized enterprises, it's important to think of use cases that would benefit your business the most. It's necessary to focus on options that would have the greatest effect while being affordable and easy to design and apply.

It's also worth investing in approaches that may not actually use AI, AR, Web3 or metaverse technology but have a similar appeal, immersive appearance or feel.

For example, if you run a small bed and breakfast, as part of your website, you can have a section for full screen videos. You can use a head-mounted GoPro or an Insta 360 camera on an invisible selfie stick to do a walk-through of your suites to simulate an immersive experience.

If you're near some stunning natural features or famous landmarks, you could put together an interesting short video that shows the transportation options from your location, maps the routes and lists the costs. You can also add links near the video to apps and sites that are helpful, like an app that offers discounts on tourist attractions or the website of a nearby bike rental store.

If you run a custom T-shirt business, it might be worth the investment to add some limited virtual try-on options to your site from a company like FaceCake. Some of their solutions only require a few lines of code to be added to your website. If this is out of your reach, you

can make videos of models of various body types and ethnic backgrounds wearing your shirts. You can easily add interesting effects, like bullet time, slow motion or flashlights in the dark without needing expensive equipment or complicated setups. There are lots of tutorials on YouTube and elsewhere.

You can also allow loyal customers to have special access to digital material. You can give them access to online previews of new products that regular customers can't access or you could let them vote on new designs.

Smaller businesses can also band together to create a shared metaverse. This is what a group of independent businesses that specialize in fast moving consumer goods has done in the United States. They call The Metamarket an online farmer's market.

Just like a real farmer's market, businesses that want a booth, in this case a virtual online booth, apply and pay a fee. They also need to offer special discounts to join the market. Customers apply for free tickets. At the time of writing, there were 500 available for each market.

The 2D virtual market looks a bit like a simplified version of The Sims. When the market starts you enter as an avatar and can check out the booths and items there using the arrow keys on your keyboard. You can turn on your computer's or phone's microphone to talk to others and can also use your camera to more closely simulate a real life interaction.

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"*For career professionals, the metaverse should be incorporated into their career planning. Any skills required for building the products, tools, and platforms of the metaverse will be in high demand in future decades. These include computer graphics, 3D modelling, rendering, game development using major game engines, artificial intelligence, optics technology that is critical to XR hardware and virtual human creation.*"

— Nina Xiang, Author
of Parallel Metaverses

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So whether you're a large corporation that wants to make a statement or a small brand trying to keep up with tech advancements on a budget, there are options for you.

If you're looking to implement Web3 marketing in your campaigns, social media and community management, we can research, prepare and execute a tailored China market strategy for you. Contact us at www.alarice.com.hk to schedule a consultation.

CHAPTER 8
Challenges and Concerns

So, if metaverses are so promising and offer such benefits and amazing experiences, what's the problem? Why aren't they everywhere? Why isn't everyone using them?

As with everything, there are problems and issues with metaverses. Some are practical while others are technical and certain issues are obvious while others are more subtle. Let's take a look at some of the most crucial matters.

1 Physical Discomfort, Headaches and Motion Sickness
Truly immersive virtual realities require people to wear virtual reality goggles or headsets. Most people have heard of Meta's Oculus headset but big tech brands like Google, Microsoft, Samsung and HTC also make VR headsets or smart

glasses. There are also a range of niche brands that specialize in this kind of hardware.

Although each brand has its own design, none have managed to solve a key issue - motion sickness. The human eye moves and reacts much more quickly and in different ways than real-time image streaming technology can keep up with. This lag means that people often feel nausea while wearing VR headsets.

As video game and virtual production expert, Dr. Kristopher Alexander said in an interview in May, 2022, "Though there are some studies that are looking into this, the speed at which the iris moves, we're not yet caught up there in terms of tracking and getting our realities, our virtual realities to move alongside that. And in that case it won't be widespread to the majority of users so yeah that's one big thing that these companies are going to have to tackle and wrestle with."

There doesn't seem to be a solution on the horizon and this queasy feeling will likely continue to be a problem for some time.

On top of that, wearing the required headgear is uncomfortable for many people. It's heavy,

bulky and difficult to modify. Most models are also designed for men, making them a bad fit for many women. Staring into a light source that isn't far from one's eyes for long periods is hard as well. Some people get headaches, even migraines, a sore neck or facial discomfort from wearing VR goggles or smart glasses.

2 VR Blindness
Full VR goggles can't be worn at any time in any place. Because they render the wearer blind, locations need to be safe and people need to take precautions to make sure they, other people and the objects in their surroundings won't be harmed or damaged. People also need to be sure they're with people they know and trust.

This limits usage scenarios and purposes and makes the experience quite different from using augmented reality applications on a mobile phone. For example, it would be a bad idea for someone to don VR goggles and use them in a public park but, as we saw in 2016, people readily gathered in public to play the augmented reality mobile game Pokemon Go.

This means that full-scale VR experiences outside of the home are tied to limited, specially designed venues.

3 Latency and Lack of Coordinated Infrastructure

An all-encompassing immersive metaverse requires the combined power of 5G, AI, next-gen processors, quantum computing, edge computing, AR, and VR. Currently, all these technologies are still developing and not advanced enough to scale en masse at an affordable price. Bandwidth and latency are the biggest bottlenecks that need to be fixed to deliver smooth real-time interactions. It will take some years to build the infrastructure to handle the massive amount of data that needs to be processed and delivered in real-time.

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" *There won't be one metaverse, but rather many metaverses existing in parallel. Some people believe there should be "one" metaverse where many virtual worlds exist inside that one mega-metaverse. But this is the most idealized version of how society or the internet operates. Judging by what tech companies are doing at this early stage, it's clear that they want to keep their walled gardens up for as long as they can. "*

— Nina Xiang, Author of
Parallel Metaverses

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4 Cost
a) Basic Gear for Users
Google Cardboard VR goggles come in a variety of styles that range in price from 8.95 to 39.95 USD and there are a range of options in the 25 to 50 USD range. However, since it's an uncomfortable, non-essential item that isn't used often, many aren't even willing to pay these prices.

At the upper end of the scale, the Oculus Quest 2 set costs just under 500 USD. The HTC Vive Pro 2 and the Pimax 8K VR headsets each cost 799 USD. The Varjo VR-3 costs 3,395 USD and the Vive Pro Secure, which is designed for classified data, costs 9,000 USD or more.

b) Other Tech Investments and Costs for Users
In addition to basic gear, users need to have software that allows them to experience immersive worlds through their VR goggles. They need up to date computers, cables and high speed internet connections if they're accessing an immersive world online. They may also need to pay for games or online subscriptions to access online worlds.

There are also likely to be higher costs associated with electricity usage, data and infrastructure

requirements. The equipment required all draw on electrical power sources that cost money. People will have to pay extra to service providers to deliver 5G or 6G and will need to pay more for devices with extra data storage space or higher computing power.

c) Brand / Corporate Tech Investment
Building augmented reality or virtual reality assets takes time, robust planning, talented designers and coders, intense marketing and a lot of servers. For small brands it's possible to invest in small, strategic ways, like sponsoring an item inside a virtual universe for a limited time, but this still demands a budget, third party assistance, good planning, coordination and execution.

The process of creating a merged online and offline consumer journey is also a challenge for many brands. Some brands haven't truly embarked on this yet. If brands are still in the middle of this process or haven't started it yet, making augmented or virtual reality assets is an even more daunting task.

5 Poor Planning and System Failure
Facebook's shift to the name Meta and a metaverse strategy in October, 2021, is a perfect example of this. The company's redirect was sudden, ill-planned and poorly executed. The parent company not only changed its name to Meta, but CEO Mark Zuckerberg said that he planned to build a metaverse.

The move was seen by many as a rebrand to avoid negative attention after a series of PR crises showed the company, and the behaviour of its upper management, in an unflattering light. The very troubled roll out of the rebranding and the metaverse has shown that the concerns people voiced and negative PR was, in many ways, warranted.

Meta and its metaverse have been massive failures. Here's a selection of related headlines from October and November 2022:
"Meta's value has plunged by 700 billion USD. Wall Street calls it a "train wreck." (CBS News)

"Facebook parent Meta winding down some non-core hardware projects" (Reuters)

"Meta laying off more than 11,000 employees: Read Zuckerberg's letter announcing the cuts" (CNBC)

And

"Meta is having a midlife crisis, and Zuckerberg's stale vision is to blame" (Fast Company)

That last article was written by Robert Fabricant who has been studying behaviour in virtual worlds for 25 years. Based on the observations and conclusions in his article, if Mr. Zuckerberg had simply had a few in-depth consultations with people like Fabricant, he could have saved his company and 11,000 employees a lot of heartache.

On a related issue, a recent report from UK consumer advocacy group Which? (the question mark is part of the organization's name) found that smart TVs, dishwashers and washing machines could lose manufacturer support after as little as 2 years. This was true for smart appliances from LG and also for Sony smart TVs. They found that Samsung smart TVs and HP smart printers had only 3 years of support. If these products were purchased one year after being introduced, they would only have a year or two of productive use. The group did praise Hisense which offers a decade of support for its smart TVs and Miele which offers the same for its dishwashers and washing machines.

On a more positive note, Matter is an open-source connectivity application developed by more than 200 companies, including Apple, Google, Samsung, Amazon and the full range of big and small smart product brands. It's been developed to facilitate interoperability for smart devices and the Internet of Things (IoT). It uses a wireless communication method called Thread to enable devices to communicate quickly without routers or cloud resources

While innovations like this are reducing smart home technical problems, and it's good that brands are finally cooperating to make their devices more standardized, the lack of brand support for their own devices poses risks and adds huge costs for smart homes. Issues related to these devices being hackable and e-waste haven't been solved either.

6 Online Safety, Especially for Children, Racism, Offensive and Inappropriate Content
There have been many reports of inappropriate behaviour and grooming of minors, unwanted sexual behaviour toward women, offensive and racist language as well as death and rape threats in online virtual universes. These reports have included Roblox, Meta, VRChat, Minecraft, Horizon Worlds, Fortnite and more. In a num-

ber of cases, complaints to the companies have resulted in no action. When action is taken, it often results in the banning of a player who can create another avatar and be back in the game in minutes.

Some platforms are not for young users and claim that they don't allow minors to enter their virtual worlds but in reality, it's often easy for participants to fake their age and identity, evade parental supervision and controls or to enter online worlds at the homes of others without their parents knowing. Other platforms are designed specifically for children. Sadly, this makes them targets for disturbed individuals and some platforms are infamous for their problems with disturbing adult users who want to victimize minors.

Roblox, has another issue as an online world used and constructed mostly by children, that it has failed to deal with. It's the most monetized major platform and has its own currency, called Robux, that can be converted into real currency. The exchange rate as of writing was USD 0.0035 per Robux. As a result, scams and issues around the exploitation of children and child labour have been issues.

Users can make games in Roblox. These games can generate income. Most of the users are children. Teenagers have now started coming forward about issues related to this. Talented game builders are often approached and exploited for their work by older users who have threatened them, treated them poorly and cut them out of lucrative deals. Some have even experienced burnout at the tender age of 14 as they spend most of their free time out of school on their Minecraft projects. Children have also been implicated in orchestrating or managing scams involving other children and making thousands of dollars in the process.

On top of that, Roblox has nowhere and no way for them to complain or to clearly take action and the exploited users also felt intimidated about speaking out on the issue. Any posts related to these topics are deleted from the Roblox forums and some are wary of coming out against people who are respected creators on the platform.

Sadly, it seems that while many metaverses have some mitigation measures in place, they're insufficient and abuse on platforms continues to be a strong concern.

Clearly, regulation and legislation with real bite are necessary and someone needs to take responsibility for resolving these issues but true and lasting action doesn't seem to be forthcoming.

7 Privacy, Surveillance and Digital Inequality

Around the world, cities are creating metaverses and digital twins. BIM (Building Information Modelling), the Internet of Things, city modelling, climate modelling, digital access for city services and more are being implemented in cities like Fujisawa, Seoul, Beijing, Dubai, New York, Amsterdam, Paris, London and more to transform them into smart cities. In some places, this includes creating a hyperconnected digital twin of the city in a parallel digital metaverse that citizens can interact with to attend events, pay bills, apply for building permission and more.

While this innovation will certainly have its benefits, particularly for cities looking to reduce their climate impact, and make certain things more convenient, there are some downsides.

In locations where there are a significant number of public surveillance cameras, like London, or where there are programs in place to mold public behaviour, like systems to photograph cars that exceed the speed limit, there are legitimate concerns about privacy, surveillance and how this data will be used.

We've seen in recent years that algorithms can sometimes have unintended consequences and the data may be used or end up causing results that planners didn't intend in the beginning. People want to be able to live their lives without constantly being watched and having all their behaviour collected as data points to be fed into a system and don't want to worry that there might be some unknown end result for them. They also don't want to hear an announcement that there has been a huge data breach and that personal information about how they live their daily lives is now available for all to see or for sale to the highest bidder.

These cities, which are being designed with digital twins and digitally accessible services, may be more convenient for people who have all the necessary devices and are digitally savvy, but what about those who don't and aren't? This may leave them even further behind than they were before.

There are also significant challenges in terms of legal jurisdiction, tax evasion, money laundering, data breaches, content moderation, encoded bias and other areas.

CHAPTER 9

Visions and Possibilities

Now that we've explored some of the downsides and issues that still need to be worked out, let's look at some of the possibilities that exist right now and how they could impact companies and consumers.

A Whole New World for IKEA
Some revealing examples of how a company could be using current multiverse tech is provided by Dr. Kristopher Alexander, Assistant Professor of Media Production at Toronto Metropolitan University (formerly Ryerson University). Dr. Alexander did his PhD thesis about video game interactivity and the use of multimedia in instructional design. He has also been a globally ranked gamer.

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" *Today, brands can use various platforms to engage with customers through immersive storytelling, 3D/ AR/digital assets, gamification, loyalty programs, NFT badges, and more. In five years, the ecosystem will be more interconnected and stable, with slimmed-down metaverses, a common search engine, and tools to enhance the immersive experience. Customers will have access to affordable and quality wearables and technologies, enabling them to experience the metaverse to its full potential.* "

— Olivia Lee, Founder of Livvium, Web3 Strategist and Digital Fashion Collector

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The examples he discussed were related to IKEA. The company already has an AR app called IKEA Place. It's a mobile app that allows people to see what furniture will look like in their space. They can choose furniture items and the app will show a scale model of the item projected on the image of the room shown on the screen by the mobile phone's camera. IKEA also has an AR manual that projects the unconstructed parts of newly bought furniture on your phone screen and shows the parts assembling themselves and flying into place in a step by step process.

Alexander said the company could add a function that allowed you to lay out all the furniture parts on the floor and scan them with your phone. The app would be able to identify all the pieces and highlight the ones you need to pick up first. The app could also make it easier to access a community of users who could help you.

There could be videos showing other IKEA customers putting the item together and a Reddit style section where you could get answers to the most common questions or get hacks and workarounds.

The company's products also lend themselves to an online metaverse where fans can decorate and design virtual spaces or build their own furniture. People could populate virtual rooms or houses with their wishlist items. This feels more concrete than a simple list or vision board.

The company could also use a virtual space to test the waters with new concepts or launch products based on designs created by community members. They could sell both real and virtual items in the metaverse to test product popularity and usability.

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" *One company that is already using the metaverse for social welfare is the Climate Chain Coalition, a non-profit network that is committed to using web3 technology for positive climate action. This includes the use of blockchain technology to track carbon credits allowing businesses to offset their carbon emissions. Collaboration over a shared digital infrastructure allows for innovation and can inspire other businesses to do the same. "*

— Evelina Lye, Co-Founder of the UNTAM3D Web3 Community

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Venue Experiences

As discussed previously, the metaverse can be used for virtual concerts. But what about when someone is buying tickets for a concert they'll attend in-person at a real venue? Venues now show maps of seating layouts but there's nothing stopping them from creating a virtual tour of the theatre or letting ticket buyers click a button to virtually experience the view from different seats before or after buying their tickets.

Helping Deaf People Travel Independently and Communicate Internationally

An app could be made available to hospitality, service and tourism providers that could enable them to connect with a deaf person's smartphone. After connecting, the staff member speaks into the phone and an avatar on the deaf person's phone translates the words into the users' version of sign language. To respond, the staff member points their smartphone camera at the deaf person and the app automatically translates the signs and gestures into their language in real time. This could also be used if a deaf person needs to make an international phone call.

Interestingly enough, this last example already exists. It was created by three NYU Tandon School of Engineering grad students in April 2018. Like many useful tools and functions for AR and the metaverse, it has a niche purpose and it takes time for these things to become better known and be more widely used.

The concepts mentioned in this chapter are all possible using current technology. However, some require big investments of time, energy and talent to bring to life. Some companies may not want to or be able to inject this kind of effort, especially during times of economic uncertainty. For some of these examples, it's only a matter of time before iterations emerge.

For others, it's only a matter of time before they're more widely used.

Conclusion

There's a lot to be excited about when it comes to metaverses. The technology we have today is making progress because of improvements to VR, 6G internet, and the spread of Web3 solutions. However, as much as lifestyles have improved because of this new technology, people have only started dipping their toes into what the metaverse is capable of.

There's so much growth that's going to happen in this area in the next decade alone, and we'll likely see new uses of the metaverse that we hadn't imagined before. All of this will soon culminate in a new era of digital enterprise, one where businesses and consumers will both have more power to buy and sell goods. But by far, the most cohesive metaverse economy and policy seems to be in China.

China is in a "calm before the storm" phase. As of the writing of this book, it will only be a few years before some of China's biggest metaverse projects are released.

Between Chinese companies holding stakes in some of the of the most popular metaverses in the world, to developing their own, the Chinese metaverse market has a strong foundation. The country's strong record of adopting and embracing new technologies, bringing them into everyday life at a pace unseen anywhere else in the world, also stands it in good stead. Many experts believe that China is where the first metaverse, as they understand it, will develop. However, just like the internet, it's likely that it will operate in parallel rather than integrated with that of the rest of the world.

Like the internet, the metaverse will be used in business, recreation, and so much more. Once the technology becomes widely adopted, it's going to grow quickly. Scale that up to the entire population of China, and it's clear why it's a wise investment.

We hope this book is a guide to this market with huge potential, and we wish you the best of luck getting ready for a new future. Stay informed and invest wisely as you imagine the possibilities of what technology can do.

Now let's go get them!

Resources

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Key Metaverse Terms and Expressions

AR (Augmented reality) - A hybrid of VR and the real world when digital elements are overlaid onto real world items on a screen or display. It's the technology that Pokémon Go uses.

MR (Mixed reality) - Mixes elements of AR and VR.

VR (Virtual reality) - A digital space that people can connect to through the internet. Using special equipment and interfaces like headsets and handheld controllers, people can move around the digital world, meet others, create things and play games.

XR (Extended reality) - Any form of AR, MR or VR

3D modeling - A process in computer graphics for creating a 3D representation of any object or surface in a virtual space.

6G - The "G" stands for the generation of the technology used in telecommunications. The biggest difference between each generation is the amount of data and the speed that it can be transmitted wirelessly. This makes a big difference to the development of data-heavy structures like the metaverse.

AI - Artificial Intelligence. AI is a form of programming that allows powerful computers to undergo trial and error to come to a solution and simulate human intelligence processes

(The) blockchain - A distributed digital record of actions and transactions. It is present in some online worlds to enable them to be decentralized.

Cloud computing - The use of computing services, such as servers, data storage, databases, software, and networking, over the internet.

Cryptocurrencies - Digital money that is created when computers do sets of mathematical tasks and "mine" them into being. Cryptocurrencies only have worth when a company backs up its value and permits its trade for goods and services.

Digital property - Digital property is like a web page in the metaverse. It's a virtual world that you own and that other metaverse users can come and visit. Of course, the property doesn't have any value on its own. If you own digital prop-erty, you need some appeal that gets people to want to visit your property or buy it for more.

Digital twin - A digital replica of an object, structure, or location.

Edge computing - A distributed computing framework that captures, stores, processes, and analyzes data near the end user, where the data is generated.

IoT - The Internet of Things, or IoT, refers to physical devices that share information over the internet. Computers are part of the IoT as they connect to the internet, and can send and receive data. The IoT is growing and includes home surveillance systems, cars, air conditioners and even coffee makers.

Machine learning - A field of computer science that enables systems to automatically learn from experience without being explicitly programmed.

Metaverse - A virtual space that you can move around in and interact with. In the future, experts expect it to be a large interconnected digital space full of interconnected and interoperable worlds.

NFT - Non-fungible token. Digital objects that have registered ownership status. When a digital object is turned into an NFT, first the object is made into a token, or a unique digital asset. Then the creator is given a key to the asset.
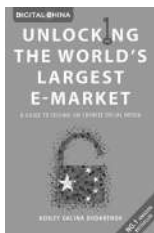
Spatial computing - The process of using digital technology to make computers interact seamlessly in a three-dimensional world.

Web3 - We are currently on web 2.0, and web 3.0 is the next big update for the entire internet. Web3 focuses on decentralization in more of its processes, giving users greater data privacy. But more importantly, it makes the internet a platform that can better support the metaverse. Soon, webpage development may be replaced with metaverse developers.

A Non-exhaustive List of Metaverses

Aardvark
Acadicus
Active Worlds (Launched on June 28th, 1995)
Active Replica
Aequaland
Alcove VR
Alloverse
AltspaceVR
Anarchy Arcade
Animal Jam
Anyland
Apertus VR
Art Gate
Arthur
Atom Universe
AvaCon
Avakin Life
Avatar Chat
AviLife
Beloola
Bigscreen
Bloktopia
Breakroom
Bud
Capsa
Ceek
Cheerio
ChilloutVR
Cluster
Core
Creta
Cryptovoxels
Cyber Live
Cyberverse
Dance Central
Decentraland
Dimension10
Diocletians Dream
DiveReal
Dreams
Edorble
Elysium VR
EmbodyMe
Endless Riff

Engage
Flowtropolis
ForeVR
Frame
Fundamental Surgery (A surgical training platform)
Gaia
Galaxity
Gather
Glue
Half + Half
Hanai World / Lune Rouge
Heavenland
Helios
Help Club
Hemosy and Project Polis
Hiberworld
Hoppin'
Horizon Venues
Horizon Workrooms
Horizon Worlds
HoYoverse
Hubs
Hypatia
Hyperfair VR
Hyperverse
Illuvium
Immersed
IMVU
Inlight Spark
InsiteVR
Insomniac
JanusXR
Kitely
LearnBrite
LiveLike
MasterpieceVR
meetingRoom
MeetinVR
MegaCryptoPolis
Metahero
Metahype
MetaWorld
Minecraft
Mona

Mozilla Hubs
Museum of Other Realities
Nanome
Neutrans
New Art City
Noys VR
Oasis
Odyssey Momentum
Occupy White Walls
OpenSim/ OpenSimulator
Overte
Oxford Medical Simulation
Paiduidao
Pararea
Party Space
Planet Theta
Pluto VR
PokerStars VR
Poptropica
Prospect
RD Land
Rec Room
Redpill VR
Relm
Remio
Remotely
Ristband
Roblox
Rooom
RP1
Rumii
Sansar
SapphireXR
Scapin
ScienceVR
SculptrVR
Second Life
Seed
Sinespace
Skittish
Somnium Space
Spatial
Spatiate
Spinview

Stage
Stageverse
Stan World
Star Atlas
Styly
SuperWorld
SurrealVR
Taobao Life
Teemew
Teleporter
The District (Still in development)
The Expanse
The Sandbox
The Wild
There.com
Threedium
TMEland
Topik
Trinity
Upland
Utherverse
Vibehub
Virbela
Vircadia
Virtual Paradise
Viveport Verse
Viverse
Vizible (Worldviz)
VR Conference
VR Triber
VR Trivia Battle
VRChat
VRLand
vSpatial
vTime
Vyou
Wave
Webaverse
Winkyverse
Wonda VR
XRSpace Manova
Yaotai
Xi Rang
Zepeto

Source: ryanschultz.com/list-of-social-vr-virtual-worlds/

This extended and updated edition, expands the analysis of the booming social media scene in China, where two tech companies, Alibaba and Tencent, and two social media giants, WeChat and Weibo, rule the roost. You'll learn about:
• How to Harness China's Most Influential Social Media Apps and Platforms
• How WeChat and Weibo Work
• The Most Effective Social Media Campaigns for WeChat and Weibo

Want to know more about influencer marketing in the world's largest and fastest growing online market? This is the second book in our series guiding you through China's digital space. You'll learn about:
• The Most Influential KOL Platforms and How They Work
• How to Find and Select the Right Influencer
• The Ins and Outs of Effective KOL Campaigns
• KOLs in action: Revealing Case Studies

A behind the scenes look at how, in only a few short years, Alibaba CEO Jack Ma's vision of "The New Retail", where 800 million consumers take for granted a world of convenience unimagined anywhere else, has become a reality. You'll discover:
• Why New Retail is about ecosystems and habitats, not channels and e-commerce
• A deep dive on the New Retail models and ecosystems of Alibaba, JD, Tencent and others
• How New Retail is going global and why you should adopt it

Our Digital China Mini Books

Chinese consumers are on everyone's mind. Who are they? What do they want and need? This indispensable guide is for anyone who wants to understand how people in China make their purchases and what leads them to make their purchasing decisions.

If you've ever thought about expanding your business into China but hesitated, this is the book for you. There are plenty of cross-border e-commerce options available without having to set up a branch office or hire a large group of local staff. It's a great solution for brands of all sizes.

When travel begins to open up again, and you want to know how to attract Chinese tourists to your location, shop or brand, this is the book for you. Find out who China's outbound tourists are, where they're going, what they're buying and why.

If you're a B2B company operating in China, this book is for you. Find out how to set yourself apart in the B2B space through the power of digital marketing and online platforms.
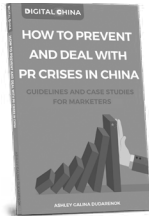
This book has been written to help companies avoid PR Crises when dealing with China. Find out examples of mistakes and PR Crises and get practical advice on how to respond to certain political, social, cultural, taste and preferences issues.
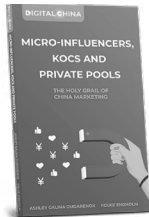
We all know that influencers, key opinion leaders (KOLs) and social media personalities of all kinds serve important roles in marketing on digital platforms. However, the crucial role that micro-KOLs and key opinion consumers play in China's complex social media world is sometimes forgotten.

Our Services

Alarice and ChoZan offer a variety of services for businesses that want to enter the China market or learn from it for marketing strategies or digital transformation.

1. China Digital Marketing Strategy and Trendwatching
If you need an effective, tailored, digital strategy for China that includes detailed research, your product's consumer journey and a bespoke marketing matrix, we can help. Go to www.alarice.com.hk. We can also help track trends in China related to your competitors, consumers, marketing or sales. For more information, go to www.chozan.co.

2. Chinese Social Media Marketing Retainer
We can operate as your long term marketing partner in China executing detailed, tailored strategies, do account management, run campaigns and do activations in China to put your brand ahead of the game. To find out more, go to www.alarice.com.hk.

3. Corporate Training: Learn from China, Learn for China
Does your marketing team need training to get up to speed on Chinese social media and digital marketing trends? Is your firm digitizing? Does it want to take a new approach to business or marketing based on lessons from China? Your marketing, sales and leadership teams can stay at the ready and shorten their learning curve with our training. For more information, go to www.chozan.co.

4. Keynote Speeches by Ashley Dudarenok
For dynamic, energy-filled, keynote speeches related to Chinese consumers, e-commerce, social media marketing and more, Ashley fits the bill. Ashley covers topics ranging from building seamless consumer journeys and implementing social+ models to effective CRM loyalty programs and China's metaverse and Web3 marketing.

She also speaks on topics such as entrepreneurship and thought leadership to inspire current and future leaders. For more information, go to www.ashleydudarenok.com.