

Executive Summary

The concept of the virtual "Metaverse" world has become popular since 2021. It is considered a new economy trend worthy of universal attention.¹ The Metaverse generally refers to a network of 3D virtual worlds focused on social connection. People in the real world can enter these artificial worlds with an avatar by using virtual-reality and augmented-reality headsets, mobile phones, personal computers and video game consoles. The Metaverse can also be understood as a huge application of various off-the-shelf technologies such as blockchain, artificial intelligence, virtual reality (VR), augmented reality (AR), machine vision, and so on.²

The infrastructural technology that drives the Metaverse is Web 3.0, the third generation of the Internet, which is a decentralized network based on blockchain technology. Users can obtain returns from the content they contribute in addition to retaining its ownership. They clearly know and can decide the usage of their private data.³

Because of the technological characteristics of Web 3.0, the Metaverse generates a lot of business opportunities. According to Bloomberg, the Metaverse market may reach \$783.3 billion in 2024, up from \$478.7 billion in 2020, representing an annual growth rate of 13.1%.⁴ Aside from this, Metaverse technology may help in the upgrading of various industries such as healthcare, finance, education, retail, business services, and so on, thereby involving many economic activities and forming the "Metaverse economy". According to a J. P. Morgan report, the market opportunity involved in the Metaverse across various industries is estimated to be US\$1 trillion per year.⁵

¹ PWC. (2021). *Demystifying the Metaverse*. Retrieved February 15, 2022, from <https://www.pwc.com/us/en/tech-effect/emerging-tech/demystifying-the-metaverse.html>

² Wikipedia. (2021). "Metaverse." Retrieved May 16, 2022 from <https://zh.wikipedia.org/wiki/> [in Chinese]

³ Preface. (2022). "What is Web 3.0?" Retrieved July 6, 2022 from <https://www.preface.ai/blog/trend/第三代互聯網-web3-0/> [in Chinese]

⁴ Bloomberg Intelligence. (December 1, 2021). "Metaverse may be \$800 billion market, next tech platform." Retrieved February 14, 2022, from <https://www.bloomberg.com/professional/blog/metaverse-may-be-800-billion-market-next-tech-platform/>

⁵ J. P. Morgan. (2022). *Opportunities in the Metaverse*. Retrieved February 22, 2022, from <https://www.jpmorgan.com/content/dam/jpm/treasury->

A number of governments of different regions have already introduced relevant policies to support the development of the Metaverse. For instance, the Seoul government of Korea has introduced the “Basic Plan for Metaverse Seoul” which covers seven areas of development including economy, education, tourism, communication, city, administration and infrastructure.⁶ In the U.S., the government has started to formulate policies related to cryptocurrency and digital assets with an aim to maintaining technological leadership in central bank digital currency.⁷ Many regions in Mainland China have also issued planning documents to support the development of relevant technologies. They are also planning to increase its application in public services and businesses.⁸

In Hong Kong, although the Metaverse can provide a lot of potential economic and employment opportunities, the government still needs to explore the best policy direction towards Metaverse technology and how enterprises and young people can prepare for the Metaverse economy so that the society is able to tap into these opportunities.

This study carries out an online survey to understand young people’s knowledge, views and experience of the Metaverse, as well as their level of demand for it. Through in-depth interviews with experts, scholars, relevant enterprises and workers, this study also attempts to understand the overall development environment of the Metaverse, its business and employment opportunities, interviewees’ attitudes towards the Metaverse economy, and the development problems involved. By synthesising all of the information collected, this study aims to make feasible recommendations on the strategies and specific measures that Hong Kong should take in order to broaden the overall economy and youth career development opportunities.

services/documents/opportunities-in-the-Metaverse.pdf

⁶ Seoul Metropolitan Government. (2022a, January 7). “Seoul to provide public services through its own Metaverse platform.” Press release. Retrieved June 20, 2022, from <https://english.seoul.go.kr/seoul-to-provide-public-services-through-its-own-Metaverse-platform/>

⁷ Chen, X. (2022, March 10). “Biden signed first US Digital Asset Scheme Inspired the Crypto Community.” Retrieved July 8, 2022, from <https://www.ithome.com.tw/news/149824> [in Chinese]

⁸ Tencent. (2021). “Notice of ‘The 14th Five-Year Plan for the Development of Shanghai Electronic Information Industry.’” Retrieved June 20, 2022, from <https://new.qq.com/omn/20211230/20211230A0BX4K00.html> [in Chinese]

This study uses data collected through three methods during the period from April to May 2022: an online survey of 1,292 HKFYG members aged 15–34, case interviews with 20 business founders or employees whose jobs are Metaverse-related, and interviews with seven experts and scholars.

Main Discussion

- 1. The Metaverse brings about new economic opportunities. With the emergence of technologies such as blockchain, VR, AR, and artificial intelligence, as well as the development of Web 3.0 (which emphasizes network openness), the Metaverse has entered the application stage.**

According to the analysis of Jon Radoff,⁹ there are seven layers in the Metaverse market: experience, discovery, creator economy, spatial computing, decentralization, human interface and infrastructure. These related technologies have created the Metaverse economy.

Interviewees are generally optimistic about the long-term development prospects of the Metaverse economy. They believe that it can reduce operating costs and bring about new business opportunities. However, the current development of the Metaverse is still mainly in the early stage of digital twin. Though some large enterprises have begun to develop their businesses in the Metaverse, their number and scope are still very limited. How the Metaverse can be further developed remains to be explored.

- 2. Young people and the public still do not understand the focus of the Metaverse in general. The survey shows that out of 1,292 respondents aged 15–34, 69.3% have heard of the Metaverse but only 37.4% say they have knowledge about it.**

Respondents rate their interest in the Metaverse with an average of 6.11 points out of 10, showing a fair interest. A total of 56.0% said they have taken part in the Metaverse where their main hurdles of participation were “lack of equipment” (43.2%), “lack of understanding of the Metaverse” (37.0%), “worry about scams” (32.3%) and “lack of relevant

⁹ Credit Suisse. (2022). Metaverse: A guide to the next-gen internet. Retrieved June 28, 2022, from <https://www.credit-suisse.com/media/assets/corporate/docs/about-us/media/media-release/2022/03/Metaverse-14032022.pdf>

technological knowledge” (32.0%).

Further, respondents rate their confidence in cryptocurrency and NFTs (non-fungible tokens) with an average of 4.98 and 4.83 points respectively out of 10. They believe that strengthening the development of Metaverse-related industries would boost the Hong Kong economy by an average of 5.97 points (out of 10) only.

Experts generally believe that the popularity of the Metaverse is insufficient to build up the business ecology and that the potential of the Metaverse is yet to be unleashed. Interviewees from the business side have said that more practical applications are needed to build confidence among the public.

3. The Metaverse can bring about more choices and alternative options for the development of enterprises.

For development and application of the Metaverse in corporations, technology giants with abundant resources are currently leading the development of basic technologies. Other large enterprises have also invested in the development of experimental Metaverse businesses to renew their brands.

When small and medium enterprises (SMEs) are faced with the necessity of upgrading, they consider the Metaverse as a choice and alternative option for their businesses. Industries such as entertainment, art, design, tourism and those with game-related elements can find prioritized opportunities in the Metaverse. However, some SMEs that are interested encounter difficulties in finding a business model that fits their own business. They also face a capital and technology threshold, as well as talent shortages and ecological problems.

A multi-media worker interviewed believes that the Metaverse can provide creators with many more expressive opportunities as it connects the virtual world and reality. Another example shows that by building a virtual space with VR technology, a media production officer of an estate agency can help clients visit in 3D properties currently under construction. Other industries may refer to these prior experiences and

look for a suitable business model in order to upgrade their businesses.

4. The Metaverse brings about economic opportunity, but it also has limitations and risks.

In terms of limitations, immersive experiences rely on VR or AR devices that generally demonstrate good performance. However, VR headsets still cause discomfort if users wear them for a long time, and at the moment, the senses of smell, taste and touch cannot fully be made a part of the immersive VR experience. In addition, the current 4G mobile network speed in Hong Kong is not sufficient to support the immersive experience.

In terms of regulations, social media platforms have been monitoring offensive content with a huge scale of resources, but the decentralized Metaverse lacks such resources to deal with this content. Beyond this, NFTs may cause bubbles and risks due to excessive speculation. Policies and regulations such as taxation, law, identity authentication, fake information and privacy have not caught up with the development of the Metaverse economy. The government should update regulations to ensure the development of this industry.

5. The government should play an important role in promoting the Metaverse economy.

A number of governments from different places have already introduced relevant policies to promote the Metaverse economy. Mainland China and Korea focus on technology development and application in the Metaverse platform by encouraging usage of the Metaverse in public services and private companies. Some governments of regions with a well-developed finance industry tend to support and regulate cryptocurrency and digital assets. For instance, Japan has already introduced policies that expand and popularize digital assets based on blockchain and that also improve the overall Web 3.0 environment. The U.S. government has also started to formulate policies related to digital assets with an aim to maintaining technological leadership in central bank digital currency.

As an international financial centre, Hong Kong should formulate a digital economy development policy as soon as possible. It should include a digital infrastructure plan for Web 3.0, the measures to protect virtual asset transactions and the regulation of cryptocurrency, and the updating of laws on intellectual property, insurance, taxation, consumer rights, and so on.

The government should also take the lead and play a more active role in promoting the Metaverse. It should include launching Metaverse public services to meet the needs of the general public, supporting interested companies in acquiring related technologies, offering more specialized courses related to the Metaverse, continuing to nurture the inter-professional knowledge and creativity of the younger generation, as well as promoting exchange in the commercial sector. The government should also fund sound Metaverse projects and encourage different industries to solve problems by making use of related technologies.

Recommendations

Drawing on the above findings and discussion, the following recommendations are offered, with the aim of promoting the Metaverse economy and broadening the development opportunities of the overall economy and careers of young people.

- 1. The HKSAR Government should formulate a digital economy development policy and recognize the status of digital assets such as cryptocurrency and NFTs in Hong Kong. It should also carry out measures to improve the development environment of Web 3.0.**

Since Web 3.0 technology will become the global development trend in information technology, the Hong Kong SAR Government should catch up with this trend and formulate its direction and policy for the development of the digital economy. The policy should state clearly that Hong Kong is highly interested in information technology and supports the goal of developing the digital economy. It should also recognize the status of digital assets such as cryptocurrency and NFTs in Hong Kong. Under this condition, Hong Kong should carry out measures to improve the development environment of Web 3.0 to

prepare for the Metaverse economy. These include a plan to enhance network infrastructure, to popularize decentralized internet, to promote the development of the Metaverse virtual space, to popularize digital assets based on blockchain technology, to regulate cryptocurrency transactions and various decentralized financial products, to renew taxation ordinances, and so on.

2. The government should launch the "Metaverse Development Pilot Program" to incubate and fund SMEs of industries with the potential to develop the application business through chambers of commerce.

The government should launch a "Metaverse Development Pilot Program" to alleviate the difficulties faced by SMEs in a Metaverse application, such as searching for suitable business models and capital and technology thresholds. It can provide specific incubation for SMEs in industries with potential, such as technology, games, entertainment, design, art and tourism by providing technical and application knowledge, as well as opportunities for visiting successful cases. Incubatees should be invited to submit business proposals on Metaverse applications, and funding can be provided for practical projects that can upgrade businesses using Metaverse technology. The Program can be implemented through relevant chambers of commerce. After demonstrating success, it can be further extended to other industries.

3. The Trade Development Council should build a "MICE [Meetings, Incentives, Conferencing, and Exhibitions] Metaverse" to continue these businesses in Hong Kong.

The pandemic of the last 2.5 years has hit the MICE industry greatly.¹⁰ The development of Metaverse conference and exhibition venues under the Hong Kong brand "MICE Metaverse" could open another outlet for Hong Kong's MICE industry. In addition to physical venues, a Metaverse version of exhibition venues would allow overseas businesspeople who may not be able to travel to Hong Kong to visit the exhibitions without having to come in person. It also allows

¹⁰ Mingpao. (2022, April, 1). "Exhibition Industry Shut Down under Epidemic Now 'Collapsed and Shrunk.'" [in Chinese]

participants of relevant industries from different regions to communicate in virtual venues. On the one hand, the “MICE Metaverse” could continue Hong Kong's MICE business and maintain its leading position in the industry. On the other hand, it could prepare for the situation after the resumption of normal traveller clearance between Hong Kong and other places, and open up additional venues in the virtual space in view of the tight supply of physical venues.

4. The Tourism Board should promote the construction of a “Metaverse Hong Kong” which reconstructs in the virtual space buildings with historical and cultural value and restarts the tourism industry.

In this post-pandemic era, Hong Kong is gradually opening up again to tourists from the Chinese Mainland and overseas regions. In order to maintain tourists’ interest in Hong Kong and attract them, the Tourism Board should promote the construction of a “Metaverse Hong Kong” which reconstructs in the virtual space buildings with historical and cultural value, such as the Lai Chi Kok Amusement Park, the Kowloon Walled City, the Queen’s Pier, the old Shek Kip Mei Estate, the Jumbo Floating Restaurant, and so on. It could also create VR games that relate to the buildings’ stories.

5. The Leisure and Cultural Services Department (LCSD) should build a “Leisure Metaverse” for its sports and performance venues to increase opportunities for the public to watch these events and promote Metaverse application.

The development of the Metaverse application in the game industry is mature and therefore extending its experience to the entertainment and art areas. Many venues of the LCSD are hired for sports events and performances, such as the Hong Kong Coliseum, the Hong Kong Cultural Centre, the Queen Elizabeth Stadium, and so on. In order to increase the opportunities for the public to watch these events and to promote Metaverse application, the LCSD can build Metaverse versions of these popular venues. In addition, the equipment of the physical venues can be upgraded to encourage venue hirers to hold events simultaneously in both physical and virtual spaces.