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Fashion, Luxury and Innovation in China: An Analysis of The Chinese Metaverse and Its Applications in The Retail Industry

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前言

这篇论文旨在研究中国元宇宙的兴起和特征，尤其是聚焦于元宇宙的所有基础技术在奢侈品零售行业的应用。本论文也分析迪奥、古奇和巴宝莉这三个奢侈品牌在中国元宇宙采取的营销战略。元宇宙是一个虚拟世界，它将数字技术、虚拟现实、人工智能等多种技术融合在一起来创造一个与现实世界相似的或完全不同的数字生态系统。元宇宙的概念元宇宙的概念于1992年尼尔·斯蒂芬森的著名小说，引发了媒体、娱乐和商业界的兴趣，同时许多公司投资了相关的功能并且开发了最先的元宇宙平台。2021年，随之Facebook公司改变名字为Meta之后，元宇宙的概念引起了广泛的兴趣，人们对其开始表现出最火爆的热情。

本论文分为三章：第一章集中于中国元宇宙的状态，第二章聚焦于中国元宇宙在奢侈品零售行业的应用，第三章分析奢侈品牌采取的营销战略。

关于第一章，也就是说中国与元宇宙，内容包括元宇宙的主要特点，特别是中国研发元宇宙的所有特征和状态。首先，本论文研究元宇宙概念的来源。于1992年，"元宇宙"这个名字第一次出现于美国作者尼尔·斯蒂芬森的小说《雪崩》。里面，作者描述了一个虚拟世界，其中用户们可以拥有自己的化身，也就是说虚拟替身，来接触其他用户、去参观虚拟地区、去购买衣服，参与活动等。许多科技公司从这本小说得到启发，开始投资数字技术、虚拟现实、人工智能等多种技术来结成元宇宙。从1970年代起，诸多虚拟世界平台正式出台了，包括《第二人生》、《罗不勒斯》、《我的世界》。不过，关于元宇宙的定义，人们还没有形成一致意见（1.1节）。尽管如此，行业专家关于元宇宙的主要特征已经达成了一致

意见：元宇宙将是同步发生的、及时的、去中心化的、可互操作的并且将允许共同检验（1.2节）。 中国元宇宙的状态与其他西方国家的相比发达得多了，国内科技公司保持有领先的地位。原因在于中国游戏行业最领先的。游戏是元宇宙的最重要要素之一，虚拟世界依靠游戏的虚拟现实和计算机制图来创造一个沉浸式的体验。 中国人非常享受游戏平台，并且对元宇宙所提供的体验很好奇，想更多参与虚拟世界的活动，例如虚拟零售活动。 中国元宇宙市场很有增长的前景，为很多品牌提供前所未有的机会。 摩根士丹利指出中国元宇宙的价值会增加到3万亿美元 （1.3节）。中国的科技巨头已经研发了自己的元宇宙平台。腾讯认为自己有技术和能力来创造真实元宇宙虚拟世界。 其实2019年， 腾讯和美国公司罗布勒斯携手合作了， 将罗布勒斯在中国本地化。同时， 腾讯研发了《超级QQ秀》， QQ秀的最新版。阿里巴巴有意把虚拟现实和电子商务融合在一起，为此2016年，阿里巴巴研发了Buy+，一种让用户们尝试虚拟衣服和配件的功能。2022年， 阿里巴巴举步向前了， 推出了淘宝的 Metaverse Mall。同一年， 字节跳动研发了《派对岛》， 里面用户们通过自己的化身可以购买货物，参与活动等其他实现生活中的活动。 最后，百度推出了《希壤》，也就是说被许多专家所认为的第一个元宇宙平台。(1.4节) 中国很有可能创建一个适合其经济、技术和政治特点的元宇宙，因此政府将推出政策来促进元宇宙的发展并获得行业的竞争优势。2021年， 一些当地政府制定了本地元宇宙发展规划和方针政策， 并且2022年中国政府发布了《虚拟现实与行业应用融合发展行动计划（2022—2026年）》， 目的是进一步推动虚拟现实的发展。(1.5节)

关于第二章， 也就是说中国元宇宙在零售行业的应用， 内容包括中国奢侈品市场和客户的介绍， 尤其是聚焦于在中国零售行业最有效的元

宇宙应用。首先，本论文研究中国零售行业正在经过的转型期。换句话说，从在实体店和线上店购买产品，中客户正在转型到在元宇宙零售店购买虚拟货物，或者尸体货物。(2.1节)　人均国内生产总值的增加是目前转型期的最重要要素之一，因素也包括生活条件的改善和最近新冠疫情的限制和封城。这种情况导致中国年轻人成为中国经济增长的拉动力。千禧世代和Z世代喜欢尝试最新服务和体验，寻求能够表达他们个性和价值观的产品，并对奢侈品有深刻的理解。虽然新冠疫情对经济产生了负面影响，千禧世代和Z世代的消费者继续了线上购物，尤其是购买奢侈产品。此外，年轻人探索了元宇宙的一些平台。（2.2节）　这种情况为西方奢侈品牌提供前所未有的机会，允许他们以有意义的方式和客户接触、以更有效的战略代表自己的价值观来加强品牌形象。特别是，元宇宙的应用能够表达奢侈品的精髓，也就是说高档独特性、可追溯性和优质性，因此参与虚拟世界是一个值得掌握的增长机会。(2.3节)　为中国奢侈品零售行业，元宇宙提供大幅度增长的前景。奢侈品牌应该依靠虚拟现实、增强现实、虚拟偶像、数字藏品与虚拟活动来解除中国年轻消费者。（2.4节）

　　第三章，也就是说在中国元宇宙上奢侈品牌采取战略的个案研究，内容包括迪奥、古奇和巴宝莉这三个奢侈品牌采取的元宇宙营销战略。奢侈品牌采取元宇宙技术的最重要原因是为了应对消费者的需求，但是元宇宙的这些独创性应用也有潜力支持品牌达成至关重要的业务目标，也就是说品牌设计、吸引与转换客户。在营销学中，品牌是企业本钱中最有价值的无形资产之一，有潜力确定和影响到企业的形象和市场定位，以此与竞争对手区分。法国品牌迪奥使用了虚拟活动来加强自己的形象。2022年，迪奥选择希壤平台作为自己的展厅，里面播放了2022年秋季男装系列的时装秀。(3.1节)　目前，为品牌吸引客户并和他们建立长期关系至关

重要：通过针对性的战略，品牌会提高忠诚度并提高重复购买的总额。 为此， 古奇与中国IP Marsper吸收了， 2021年一起创造了一个限量版套数字藏品系列。(3.2节) 转换观念是吸引客户的以下阶段， 是指将消费者从接触信息到达成购买并享受产品或者服务的过程。目前， 消费者更愿意花钱享受购买体验，特别是前所未有的体验。 2021年， 巴宝莉参与了天猫的元宇宙艺术展。这种平台出台于双十一前二十天， 是由虚拟偶像AYAYI主持的。在该平台上，国际奢侈品牌可以上传自己创造的数字藏品。巴宝莉推出了1000件限量版戴着围巾的鹿吉祥物数字收藏品， 在支付购买NFT后，客户还将收到实物版围巾。(3.3节)

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Chapter 1
China and the Metaverse

The year 2021 is marked as the *first year of the Metaverse* in China.[1] Baidu's platform *Xirang* made its debut on the Chinese market, and it is regarded by many experts as the first Metaverse, while Tencent acquired 40% of shares from the American company Epic Games,[2] and Bytedance bought the VR manufacturer company Pico.[3] These events generated enthusiasm toward the Metaverse in the whole country and pushed Chinese people to venture into the virtual realm and contemplate the possibility of transferring part of their daily activities online. Chinese people have always been accustomed to emerging technologies, especially Millennials and Gen Zs who are frontrunners in the digitalisation race and who are igniting the growth of consumption in China[4]. However, the Metaverse trend explosion is largely due to the Coronavirus pandemic and the severe restrictions imposed on major Chinese cities. Traditional offline activities were confronted with the risk of shutting down their business, thus they decided to shift their shop online. Consumers, however, demanded the same immersive and social experience that they found in physical storefronts.[5] To overcome the limits of traditional online platforms, Chinese companies began investing in new

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[1] MA, Arnold, *Turning 'Metaverse Hype' Into Consumption in China*, "Jing Daily 精奢", 2022, https://jingdaily.com/china-metaverse-virtual-fashion-consumption-shenzhen/, retrieved on 14-10-2022.

[2] *"Téngxùn tóuzī yóuxì gōngsī yīlǎn: Quántóu 100% Epic 40% lán dòng 11.5%"* (腾讯投资游戏公司一览:拳头*100% Epic 40%* 蓝洞*11.5%*), Sina, 2020.
https://tech.sina.cn/2020-08-11/detail-iivhvpwy0384112.d.html retrieved on 20-03-2023.

[3] LIU, Yingcong, et al, "Research on the Acquisition of Pico by Byte Dance", *Proceedings of the 2022 2nd International Conference on Economic Development and Business Culture (ICEDBC 2022)*, Amsterdam, Atlantis Press, pp. 1265-1271.

[4] JIA, Zhou, et al, , China's Gen Z are coming of age: Here's what marketers need to know, 2020, https://www.mckinsey.com/cn/our-insights/our-insights/chinas-gen-z-are-coming-of-age-heres-what-marketers-need-to-know, retrieved on 14-06-2023.

[5] GAO, Yu 高昱, *"Yuán yǔzhòu chǎnyè fāzhǎn jí fēnxī bàogào"* 元宇宙产业发展及分析报告 (An analytical report on the Metaverse Industry), in *Kējì lánpíshū: Wénhuà kējì chuàngxīn fāzhǎn bàogào* 科技蓝皮书:文化科技创新发展报告 (*Annual Report of Culture and Technology Innovative Development*), 社会科学文献出版社 (Social Sciences Academic Press China), 2022, pp 92-108.

technology research and development to provide online shops with the necessary engine to recreate a seamless shopping experience. This is the main reason behind the development of the Chinese Metaverse. But what is the Metaverse?

1.1 The history of the Metaverse development

The word 'Metaverse' is composed of the prefix *meta*, meaning beyond, and the suffix *verse* which stands for universe;[6] thus, the literal meaning is that of a universe that goes beyond the physical world, an immersive three-dimensional digital environment.[7] This term is used to describe a hypothetical successor of the Internet where users interact seamlessly with each other and digital objects in a shared virtual space, typically three-dimensional, that is characterised for being immersive and interactive.[8] Many experts envision the Metaverse as a network of virtual environments, where each world has its own rules, culture and economic system, it will be a gateway to many digital experiences, and it will provide diverse opportunities for contents, companies, products, services, and functions.

The term 'Metaverse' was coined by Neal Stephenson in his novel *Snow Crash* published in 1992 and referred to a virtual world people could jump into to escape reality. In Stephenson's dystopian novel, people access the Metaverse through computer terminals and interact with other individuals using customisable avatars. Avatars interact with each other on the Street, a massive boulevard visited daily by nearly 15 million people who are able to travel, purchase products and even buildings, and can engage in all sorts of human activities as in the real world. Stephenson's Snow Crash created the collective

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[6] DIONISIO et al, "3D virtual worlds and the metaverse: Current status and future possibilities", ACM *Computing Surveys*, 45, 3, 2013, pp. 1-38.

[7] *Ibidem.*

[8] BALL, Matthew. The Metaverse And How It Will Revolutionize Everything, *Liveright Publishing Corporation*, New York, 2022

image we have about the Metaverse and did inspire recent technological advances.[9]

Today, 'Metaverse' is probably the most popular buzzword everywhere: in 2021, it was mentioned 138 times, compared to only 4 times in 2018.[10] However, there is still a lot of confusion and uncertainty around the Metaverse, and a general definition of the concept has not been agreed yet. Most companies define the Metaverse according to their worldviews and business scope.[11] Microsoft defined the Metaverse as "as a set of technologies that allow for persistent digital representation, connected to aspects of the real world."[12] which, according to CEO Satya Nadella, will enable us to embed computing into the real world and to embed the real world into computing.[13] As a matter of fact, Microsoft is working on industrial metaverse applications to create spaces where engineers, technicians and workers can collaborate using new digital innovations. Another definition of the Metaverse is articulated by Zuckerberg, who sees the Metaverse as a digital tool to further connect individuals in an immersive virtual reality and he is working on VR devices such as Facebook's Oculus.[14] Venture capitalist and Metaverse expert Matthew Ball, in his *The Metaverse and How it Will Revolutionise Everything* (2022), defined the Metaverse as

"a massively scale and interoperable network of real-time rendered 3D virtual worlds that can be experienced synchronously and persistently by an effectively

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[9] *ibidem.*

[10] Source: Sentieo report from 2022.

[11] BALL, Matthew. "The Metaverse And How It Will Revolutionize Everything", *Liveright Publishing Corporation*, New York, 2022.

[12] CATZEL, *The metaverse: An evolution in transportation, travel, and hospitality*, "Microsoft Industry Blog", 2022, https://www.microsoft.com/en-us/industry/blog/automotive/2022/11/29/the-metaverse-an-evolution-in-transportation-travel-and-hospitality/#:~:text=Meta%20means%2C%20%E2%80%9Cbeyond%2C%E2%80%9D,and%20virtual%20reality%20(VR), retrieved on 21-02-2023

[13] Microsoft Ignite 2021 Satya Nadella Keynote Transcript https://news.microsoft.com/wp-content/uploads/prod/2021/11/Microsoft-Ignite-2021-Satya-Nadella.pdf retrieved on 28-02-2023.

[14] BALL, Matthew. "The Metaverse And How It Will Revolutionize Everything", *Liveright Publishing Corporation*, New York, 2022

unlimited number of users with an individual sense of presence, and with continuity of data, such as identity, history, entitlements, objects, communications and payments".

For the purpose of this research, the term Metaverse is used to refer to those virtual worlds characterised by a sense of community, real-time mode and XR technologies[15] that offer users opportunities for immersive and interactive experiences. It must be noted, however, that no company has developed a Metaverse that is fully integrated and respects to the letter the description given above.

The first steps toward the Metaverse have been made in the gaming field in the 1970s, when players first started interacting with other players from the other side of the planet through *Multi-User Dungeons* (MUDs) and *Multi-User Shared Hallucinations* (MUSHs). [16] Both were software text-based videogames that allowed users to recreate the human language, to travel and explore the virtual world and interact with other users. [17] Further advances in technologies for processing, transmitting, and displaying content were made and the high maturity degree reached enabled for new user experiences, in particular purchasing products and participating in events. The launch of *Second Life in 2003* was the actual game changer in the field and made many companies begin to contemplate the concrete possibility of a parallel virtual world. In *Second Life*, users could interact in real-time with other users and edit the environment,

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[15] XR stands for Extended Reality, which includes both virtual reality (VR) and augmented reality (AR).

[16] Dionisio, Burns and Gilbert in their research (2013) reported some definitions of MUDs and MUSHs provided by experts in the field, namely Roy Trubshaw, Richard Bartle and Turckle. MUDs involve the creation of realities that resemble the *Lord of the Rings* or the role-play dice game *Dungeons and Dragons* (Trubshaw, Bartle), they are created as a multiplayer, real-time, virtual gaming world which is described primarily in text (Turkle). MUSHs, instead, are less-defined realities that can be explored by users and that allow for collaborative creation and favour open-ended socialisation and cooperation (Turkle) (3D Virtual Worlds and the Metaverse: Current Status and Future Possibilities).

[17] BALL, Matthew, "The Metaverse And How It Will Revolutionize Everything", *Liveright Publishing Corporation*, New York, 2022.

furthermore they were given the opportunity to import real objects and textures in the game. The open-ended commercial virtual environment attracted millions of regular users in just one year and its huge market potential pushed many for-profit companies and no-profit organisations to open their digital store on the platform. [18] As a matter of fact, the popularity of *Second Life* encouraged the rise of other virtual world platforms that gained a huge success in the 2010s. This is the case of *Roblox* and *Minecraft*, whose target audience were teenagers and therefore their tools were easier to use, and their success was beyond expectations, not only in Western countries but also in China. [19] Both platforms are collaboration-based, meaning that users cooperate in small teams to create the digital world everyone can visit, with cities even bigger than the real ones. It is impressive the case of that one Chinese player, that during the first COVID-19 pandemic lockdown rebuilt the entire city of Wuhan on *Minecraft* and received global attention, or the case of Aztter, another Chinese gamer, that livestreamed the whole creation process of its cyberpunk city *Unknown*. [20] Another sensational phenomenon is that of *Animal Crossing: New Horizons*. Unlike other platforms, Animal Crossing has no explicit game-like goal like winning, rather users live on a tropical island, breed animals, and foster a community by crafting items and trading them with other players. It is quite evident the progression in the conception of the Metaverse, from seeing it as an amplified version of individual virtual world to conceiving it as a network of interconnected virtual worlds, of fully digital environments focused on community, and with no gaming scope. [21]

It is indeed that the Metaverse will have a huge market potential and companies will try to cease this opportunity. However, when transferring their activities to the Metaverse, companies have to change their business models and value

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[18] *Ibidem.*

[19] *Ibidem.*

[20] Teng Fei, online famous player Aztter, declared that the city Unknown is an homage to Stephen Hawking, and his theory of multiverse.

[21] BALL, Matthew. "The Metaverse And How It Will Revolutionize Everything", *Liveright Publishing Corporation*, New York, 2022.

proposition to better adapt to the new virtual sales channels and means for creating customer relationships. They have to rethink the whole innovation process and leverage the opportunities the virtual world offers to create competitive advantage and compete in the Metaverse market. [22] While many Western companies still have a bit of confusion around what the Metaverse is, how it should be implemented and what it should do, Chinese mega-corporations of Tencent, Alibaba, Bytedance and Baidu seem to be at the forefront of the race to the Metaverse and have already developed their platforms and made them available to international brands.

1.2 Metaverse core attributes

The Metaverse is still under development and the concept is surrounded by confusion. However, experts in the field have already agreed on its characteristics. The core attributes of the Metaverse reported here below are a summary of those identified by Ball in his book *The Metaverse and How It Will Revolutionise Everything* (2022) and in his essay *The Metaverse: What It Is, Where To Find It, and Who Will Build It* (2020).

It will be persistent, meaning that the Metaverse "never "resets" or "pauses" or "ends", it just continues indefinitely". [23] Unlike the Internet where videos and content can be paused and replayed in another moment, the Metaverse is always live and does not stop when one user leaves the platform, instead it continues for an indefinite amount of time. Only the player's memory and records of what they have achieved and bought will persist over time. If one player buys a digital artwork and decides to display it, the server has to immediately manage the change and decide how to show it to other players, if they can interact with it, if it changes over time. If one player is shopping and accidentally breaks

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[22] DUWE, Daniel, et al., *Enabling the Metaverse. White Paper on international user preferences, business models and innovation processes in the Metaverse*, Fraunhofer-Institut für System- und Innovationsforschung ISI, Karlsruhe, 2022.

[23] BALL, Matthew, *The Metaverse: What it is, Where to find it, and Who will build it*, "MatthewBall.cv", 2020, https://www.matthewball.vc/all/themetaverse, retrieved on 22-02-2023.

something, the computer must choose how to manage it, whether it adjusts by itself or remains like that. It is evident that the challenge of persistence is therefore that of retaining a big amount of information, which requires greater computational needs thus reducing the availability of memory and power for other devices. [24]

The Metaverse will be synchronous and live, that is the activities in the Metaverse do not only have to persist over time, but they must be shared experiences in real time. This characteristic is similar to a livestream video, where there is no person dictating the movement or the words and it is streamed in real time. In the Metaverse, apart from few contents that will be pre-created, everything will be live, and every decision taken by a user affects the entire collective experience, "the Metaverse will be a living experience that exists consistently for everyone and in real-time." [25] The challenge of synchronous experiences is one of the biggest to face, because the Internet was not designed to support them, but simply to share static messages that are frequently updated. To participate in shared experiences, all users should have an internet connection that is uninterrupted and that is strong enough to transmit large amounts of data each time.

To allow for shared experiences, the Metaverse will have to be massively scaled and without any cap to users. The Metaverse will be like a "galaxy" of virtual worlds, thus the number of platforms is to be massively scaled, similarly to the number of pages available on the Internet. [26] Recently, there was a growth in the number of virtual platforms which will eventually stand alone and be part of bigger virtual platforms. Moreover, such platforms should be available to every user that wants to join it, without facing a constraint in the number of

[24] BALL, Matthew. "The Metaverse And How It Will Revolutionize Everything", *Liveright Publishing Corporation*, New York, 2022

[25] BALL, Matthew, *The Metaverse: What it is, Where to find it, and Who will build it*, "MatthewBall.cv", 2020, https://www.matthewball.vc/all/themetaverse, retrieved on 22-02-2023.

[26] BALL, Matthew. "The Metaverse And How It Will Revolutionize Everything", *Liveright Publishing Corporation*, New York, 2022.

participants, because "everyone can be a part of the Metaverse and participate in a specific event/place/activity together, at the same time and with individual agency". [27] This one, however, is a big challenge for developers because computing limitations only allows for a limited number of players at time to share the same experience, otherwise the experience will be sharded. [28]

Finally, the Metaverse will have to be interoperable. Most watchers envision the Metaverse as a galaxy of interconnected worlds in which all experiences are shared. This means that data, digital assets and contents should be shared across all platforms, allowing users to buy a shirt in one world and wear it in another platform, to use the same avatar with the same clothes and physical characteristics in all virtual platforms. To this end, a standardisation of protocols, locations, currencies and identities is needed. [29] Today, a sort of currency standardisation has taken place with Bitcoins, the online digital currency used to buy assets online. However, not all countries allow for its use. In 2021, People's Bank of China, together with 9 other governmental authorities, banned cryptocurrencies and offshore exchanges in China to prevent money laundering and safeguard netizens' assets. [30]

1.3 State of the art of the Chinese Metaverse

Many advances are still needed to create the Metaverse observers envision, but steps are being taken rapidly in China thanks to the gaming industry, which is a key component and a source of technology for building the Metaverse. Known as

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[27] BALL, Matthew, *The Metaverse: What it is, Where to find it, and Who will build it*, "MatthewBall.cv", 2020, https://www.matthewball.vc/all/themetaverse, retrieved on 22-02-2023.

[28] Shard is a game tool designed to prevent overcrowding. When too many players join the same space, the game automatically creates a shard, a copy of that area and makes it available to only a limited number of users. The downside is that each shard acts separately from the others, with items appearing at different times and users only interacting with people in the same shard.

[29] BALL, Matthew, *The Metaverse: What it is, Where to find it, and Who will build it*, "MatthewBall.cv", 2020, https://www.matthewball.vc/all/themetaverse, retrieved on 22-02-2023

[30] BROOKE, Sofia *China Makes Cryptocurrency Transactions Illegal: An Explainer*, "China Briefing", https://www.china-briefing.com/news/china-makes-cryptocurrency-transactions-illegal-an-explainer/, retrieved on 31-03-2023.

the "*Game industry capital of the world*", [31] China is actually the largest gaming market in the world: it accounts for 25% of the global video game industry, [32] with more than 665 million players and an estimated revenue of 265 billion RMB in 2022[33]. The gaming industry started gaining popularity in China in the mid-2000s with the spread of mobile phone, which created tremendous opportunities and attracted the attention of international corporations and local companies such as Tencent and NetEase[34], which are now the two most valuable players in the market that respectively occupy 54% and 17% of the market share in China. [35] Actually, the mobile game sector occupies 75% of the market and most developers are focusing their efforts on developing mobile-friendly video games; it is followed by online gaming, a segment that is fast growing and dynamic and whose market volume is expected to jump up to 7.62 billion US dollar in 2027. [36] Recently, the Chinese government has released some regulations to increase the control over the video game content. New content guidelines to eliminate scenes that are considered inappropriate by authorities were introduced and those games with politically harmful content and "blurred moral boundaries" [37] have been censored; also, a game rating system was created. Furthermore, limitations have been imposed on age and on average time spent playing with the aim of reducing the game addiction issue. These restrictions have impacted on the way of creating games and of interacting among users,

[31] *The Gaming and E-sports market in China*, "The Flanders Investment & Trade Shanghai", market survey 2021.

[32] MOKAYA, Stephen. *Games Industry in China. Economic and Political Factors*, GRIN Verlag, Munich, 2022.

[33] THOMALA, Lai Lin *Gaiming in China – statistics & Facts*, Statista 2022, https://www.statista.com/topics/4642/gaming-in-china/#topicOverview, retrieved on 03-03-2023.

[34] MOKAYA, Stephen. *Games Industry in China. Economic and Political Factors*, GRIN Verlag, Munich, 2022.

[35] *Market Share of Mobile Gaming Companies in China* 2020, Statista, 2022. https://www.statista.com/statistics/1034597/china-mobile-gaming-companies-market-share-by-mobile-game-revenue/ retrieved on 31-03-2023.

[36] *Online Games – China*, Statista 2023, https://www.statista.com/outlook/dmo/digital-media/video-games/online-games/china#revenue retrieved 31-03-2023.

[37] South China Morning Post, reported Governmental memo (2021).

thus they constitute a challenge for game developers in China; however, they did not stop the rapid growth of the sector and the Chinese one is still the world's most lucrative gaming market. [38] Among the factors driving the industry growth is the population size. China has a population of 1.4 billion people that is growing constantly, which means more potential customers and opportunities for developers to expand their customer base and their market. Also, the economic development and the increase of individual disposable income played a role. The Chinese middle class has more money available and is willing to invest in video games, with an average of individual expenditure equal to 445 Chinese yuan. [39] This has also been facilitated by the Chinese advanced digital payment system, which has helped to make online gaming easier to access and even more affordable[40]. Furthermore, cultural factors have contributed to the booming of the gaming industry. Gaming has a long tradition in China, with board games and traditional games like *Mahjong* being played for centuries by both men and women and constituting a moment of social interaction with friends and family. This habit has created a culture where game is widely accepted by society and seen as a normal activity. Today, gaming is encouraged to children to help them develop problem-solving skills and critical thinking. [41] Also, it is a common way to connect with people and overcome the problem of social isolation that is quite common in China due to the large population. Through gaming online, young Chinese players have the chance to meet like-minded people, make friendships and create communities of players all across the country[42]. All these factors have contributed to the enormous growth of the gaming industry, which is also supported by funds and private investors and backed by the Government

[38] MOKAYA, Stephen, *Games Industry in China. Economic and Political Factors*, GRIN Verlag, Munich, 2022.

[39] *Gaming in China – statistics & Facts*, Statista 2022, https://www.statista.com/topics/4642/gaming-in-china/#topicOverview, retrieved on 03-03-2023.

[40] MOKAYA, Stephen, *Games Industry in China. Economic and Political Factors*, GRIN Verlag, Munich, 2022.

[41] *Ibidem.*

[42] *Ibidem.*

policies. [43] The five-year action plan released in 2015 Made in China 2025 aims at making China the leader in technology and to place the country in the first gear of global manufacturing countries by 2049. The Made in China 2025 plan lists the industries the country must prioritise concerning development, and includes next-generation IT such as 5G network infrastructures, and AI, VR/AR devices, cloud computing and big data.

Today, companies are investing in research and development to improve the whole gaming experience with high-quality graphics and equipment to attract habitual users and new players to the entertainment industry. As a matter of fact, developers are seeking to create better graphic technology, VR/AR headsets, AI and Internet infrastructures to allow users to access high bandwidth, fast and continuous connection for an improved gaming experience. These technologies have been integrated into videogames. For instance, VR and AR are serving the purpose of creating immersive and engaging videogaming experiences for users, the advancement of graphic technology allows for the creation of realistic and highly detailed digital environments in which players are free to interact, while internet connection has allowed for multiplayer games. All these improvements serve as the basis for the construction of virtual worlds, [44] which are becoming popular in China and are built for playing, and usually their scope is that of achieving goals, winning, defeating or solving a mystery. [45] However, today we are observing a shift towards virtual worlds whose scope is that of educating, socialising, and also purchasing. In particular, the socialisation scope is being gradually integrated into videogames as users need more means for interacting with others and engaging in social activities while playing online. Virtual worlds serve as the basis for constructing the Metaverse, as the underlying technology

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[43] MOKAYA, Stephen, *Games Industry in China. Economic and Political Factors*, GRIN Verlag, Munich, 2022.

[44] *Ibidem.*

[45] BALL, Matthew. "The Metaverse And How It Will Revolutionize Everything", *Liveright Publishing Corporation*, New York, 2022.

is the same, and many of them have already become a Metaverse platform themselves.

To better understand how virtual world videogames transitioned toward the Metaverse, we consider the evolution of The Sandbox 沙盒网络. [46] The Sandbox is a game concept developed by Pixowl and Onimatrix and it is inspired by its American counterpart Roblox; it is the biggest user-generated content platform and counts 1 million monthly users. [47] The Sandbox provides users with a platform to create digital assets, games and apps, but it aims at being something even more powerful. According to a Sandbox statement reported in an article written by *Metaverse*, the company wants to create something that "can evolve and be better, faster, stronger and safer", and as technology evolves, the platform evolves too. In 2016, the Sandbox launched *Sandbox Evolution*, a new version of the game that enables players to create and destroy their world, to purchase items inside the game using a specific digital currency and strengthen the community around the game. [48] In 2018, a new improved version of the game was launched with fully 3D graphics, multiplayer mode and with the possibility of exploring more than one platform inside the game. [49] The Sandbox development was a path leading to the Metaverse. The company is now working on improving its blockchain technology, and digital worlds and games will collaborate to create a "collective and persistent virtual shared space". The ultimate version of the game features most of the Metaverse characteristics: it is a decentralised platform, its virtual environment is entirely developed with 3D graphic

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[46] Sandbox is the name of the Pixowl Inc. developed platform, but it is also a video game mode in which the player is not constrained to achieving specific goals and has a large degree of freedom to explore, interact with, or modify the game environment (Merriam-Webber Dictionary definition).

[47] *"Yuán yǔzhòu píngtái:The Sandbox shā hé"*元宇宙平台：*The Sandbox*沙盒 (*Metaverse Platform: The Sandbox*), 元宇宙之门 (Gate to the Metaverse) 2022, https://wwwx168.cn/metaverse-platform-the-sandbox.html , retrieved on 07-03-2023.

[48] *"Yuán yǔzhòu píngtái:The Sandbox shā hé"*元宇宙平台：*The Sandbox*沙盒 (*Metaverse Platform: The Sandbox*), 元宇宙之门 (Gate to the Metaverse) 2022, https://wwwx168.cn/metaverse-platform-the-sandbox.html , retrieved on 07-03-2023.

[49] *Ibidem.*

technology, the game main scope is creating a community for building worlds together and it has a marketplace, where user-like-avatars can buy and sell digital assets such as NFTs and lands for building. [50] The Sandbox case helps us to comprehend how videogames have gradually transformed into Metaverse and why they play such a significant role for its development. Videogames that were designed for a single player use have been slowly integrated with socialisation functions to facilitate interactions between users while playing online. This integration has significantly contributed to the creation of communities around videogames and led to players asking for more tools aimed at fostering socialisation and the community. Ultimately, these videogames become more social platforms where users gather to meet with their online friends, trade items and collaborate, rather than being a mere videogame experience aimed at achieving targets.

Virtual worlds are the way many players first came into contact with the Metaverse, and it is no surprise that tech giants are investing in the gaming industry to obtain advantage on the Metaverse underlying technology. This is why many people see the application of VR headsets and AR glasses mainly in the gaming field. However, the Metaverse unveils enormous possibilities for business that go far beyond the entertainment and social network areas. One of the strategic direction of the Metaverse is healthcare. Artificial Intelligence, for example, supports professionals in diagnosis processes and medical decision . [51] The art and culture industry has already seen the application of the Metaverse avatars as virtual ambassadors of museums to boost engagement with visitors and digital installations.[52] Finally, the Metaverse capabilities offer marketing opportunities for e-commerce and retailing with interactive spaces for shopping and events.

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[50] *Ibidem.*

[51] NORDEY, Patrice, *Into the Chinaverse: How the Meta wave is hitting China*, Fabernovel.

[52] *Ibidem.*

Chinese consumers seem to particularly enjoy these new experiences and are willing to take a step further into the digital world. According to a research conducted by Duwe, Busch and Weissenberger-Eibl in 2022, Chinese people are those who have experienced the Metaverse the most and those who are more willing to accept a complete shift of life in a parallel digital world, with only an 8% of people rejecting it. Another data shows that Chinese netizens are willing to spend 57 hours per week in the Metaverse. This shows that Chinese people constitute an appealing market for those companies who seek to expand in the Metaverse, and their willingness to invest in it creates exciting opportunities for profit. According to a Morgan Stanley January 2022 note to investors, the initial value of the Chinese Metaverse will be approximately 4 trillion dollars but, as it will totally replace mobile internet and offline activities, the value of the Metaverse could raise up to 8 trillion dollars. [53]

The Metaverse is a fresh opportunity for business expansion and perfectly matches the need for newness and unseen that Chinese consumers demand. [54] Many Chinese players have been venturing in the Metaverse. According to a report issued by the Chinese research company Qichacha, 1,692 companies applied for 11,376 Metaverse trademark in 2021 alone, that is the 99.9% of all Metaverse companies in China at the moment. [55]

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[53] *Morgan Stanley picks names to play China metaverse*, CNBC, 2022. https://www.cnbc.com/2022/02/01/stocks-to-buy-morgan-stanley-picks-names-to-play-china-metaverse.html retrieved on 2-04-2023.

[54] INTERESSE, Giulia, *China's Debut in the Metaverse: trends to Watch (Updated)*, "China Briefing", 2022, https://www.china-briefing.com/news/metaverse-in-china-trends/, retrieved on 21-02-2023.

[55] *"Qǐ chá chá fābù "zhōngguó yuán yǔzhòu shāngbiāo shēnqǐng qǐyè huàxiàng bàogào"*: *Zhōngguó yuán yǔzhòu de wèilái zài zhè 1692 jiā gōngsī shǒu lǐ!* 企查查发布《中国元宇宙商标申请企业画像报告》: 中国元宇宙的未来在这1692家公司手里！(Qichacha released the "China Metaverse Trademark Application Enterprise Portrait Report": The future of China Metaverse is in the hands of these 1692 companies!) 金融虎, 2022. http://www.jinronghu.com/news/36166.html retrieved on 9-03-2023.

1.4 Chinese Tech Giants and their Metaverse Platforms

The Metaverse is creating appealing business opportunities for both investors and developers. China has an advantaged position in the Metaverse race, with local businesses developing enabling software and hardware, VR and AR technologies. [56] Chinese tech giants are piling into the Metaverse and shaping it up with unique characteristics. They include China's most renowned firms, which will be discussed one by one with their respective Metaverse platforms.

1.4.1 Tencent 腾讯

Tencent is China's social media and gaming giant, and it "may be the best positioned of any company to win the (Metaverse) race". [57] Tencent was founded by Ma Huateng and his classmates in 1998 and launched its QICQ, later changed to QQ, an online instant messaging service for computers. QQ is actually one of Tencent's most successful platforms and it has been incorporated with a marketplace, online games, music and blogging among other services. [58] Tencent most renowned app is WeChat (*Wēixìn*, 微信). The *app for everything*, [59] or *super-app* [60] is a multipurpose social media platform which was featured with a plethora of other services ranging from videogames and news, to bookings and paying bills. [61] WeChat is more than just a communication platform: it is

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[56] INTERESSE, Giulia, *China's Debut in the Metaverse: trends to Watch (Updated)*, "China Briefing", 2022, https://www.china-briefing.com/news/metaverse-in-china-trends/, retrieved on 21-02-2023.

[57] *Building a Metaverse with Chinese Characteristics*, "The Economist", 2022, https://www.economist.com/china/2022/02/04/building-a-metaverse-with-chinese-characteristics, retrieved on 19-03-2023.

[58] MELNIK, Jeffrey, *China's "National Champions": Alibaba, Tencent, and Huawei*, "Education about Asia", 24, 2, 2019, pp. 28-33.

[59] CHAO, Eveline, How WeChat Became China's App For Everything, "Fast Company", 2017. https://www.fastcompany.com/3065255/china-wechat-tencent-red-envelopes-and-social-money retrieved 15/06/2023.

[60] COLARIZI, Alessandra, *WecChat, Una Super-App Per Conquistare Il Mercato Cinese*, "China Files", https://www.china-files.com/wechat-una-super-app-per-conquistare-il-mercato-cinese/ 2022. retrieved on 15-06-2023.

[61] Tencent has in fact developed its WeChat Pay and incorporated it in the app to allow billions of active users to transfer money, keep track of their digital wallet and pay in both online and offline.

something Chinese people are difficult to live without because the services it provides are part of daily life. Tencent is also exploring the gaming and computer service areas. The QQ platform is one of the most valuable online gaming divisions, with its multiplayer game for mobile *Honor of Kings* succeeding also outside China's boundaries. [62] Moreover, Tencent owns 40% of the game developer company Epic Games whose main product is *Fortnite*, which has been labelled as a possible gateway to access the Metaverse.

As a matter of fact, Tencent has expressed its interest in pioneering the *Metaverse*. "The Metaverse is an exciting topic, and I believe Tencent has a lot of technologies and capabilities to explore and develop the metaverse, such as gaming, social media, and artificial intelligence. We have extensive experience in related fields." said Ma at Tencent Holdings' 2021 third quarter performance conference call in November 2021. [63] The company believes that the most exciting point of the Metaverse, to whom they refer to as *quanzhen Internet*, is its immersive user experience and the user participation in shaping the virtual world; [64] thus, the company direction in the Metaverse is developing software and allowing for greater communication. Tencent has already experience in this field. The company invested 330 million dollars in the acquisition of part of Epic Games shares, which also allows Tencent to have a degree of control over Unreal Engine, a world leading gaming engine provider. [65] Gaming is a very important part for building Metaverse underlying architecture and Tencent has gained relevant experience in UGC (user-generated content) and PGC (pre-game chat)

[62] MELNIK, Jeffrey, *China's "National Champions": Alibaba, Tencent, and Huawei*, "Education about Asia", 24, 2, 2019, pp. 28-33.

[63] *Mǎhuàténg: Téngxùn yǒu dàliàng tànsuǒ hé kāifā yuán yǔzhòu de jìshù hé nénglì*, 马化腾：腾讯有大量探索和开发元宇宙的技术和能力, *Ma Huateng: Tencent has a lot of technologies and capabilities to explore and develop the "metaverse"*, "Sohu", 2021, https://www.sohu.com/a/500491155_549351, retrieved on 25-03-2023.

[64] XIANG, Nina, *Parallel Metaverses, How the US, China and the rest of the world are shaping different virtual worlds*, Independently published, 2022.

[65] *Téngxùn tóuzī yóuxì gōngsī yīlǎn: Quántóu 100% Epic 40% lán dòng 11.5%*, 腾讯投资游戏公司一览：拳头100% Epic 40% 蓝洞11.5%, *(Overview on Tencent Investment in Gaming Companies: 100% of Quantou, 40% of Epic and 11.5% of Bluehole)*, Sina, 2020. https://tech.sina.cn/2020-08-11/detail-iivhvpwy0384112.d.html retrieved on 20-03-2023.

tools that allow for impressive user experience. Immersive experience in the Metaverse would not be possible if there was no strong cloud software to back it, and Tencent has tried to overcome the issue with cloud-related technology such as Tencent Cloud. Furthermore, the experience gained with WeChat and QQ gives Tencent the capacity to integrate its Metaverse platforms with social media features, which are expected to be the core attributes of the Metaverse. [66] Tencent is therefore expected to develop an all-encompassing super-Metaverse with all kinds of services from payment, e-commerce, social media, gaming and many others, thus creating a virtual version of its WeChat. [67]

Tencent's first attempt in the Metaverse is its partnership with Roblox in 2019, the American company known as the first Metaverse IPO, to bring a localised version of the game to China. In July 2021, 罗布乐思 (*Luóbùlèsī*) was officially released and the app jumped at both iOS and Android store number one app. [68] The data collected by Qimai shows that the average daily download of Roblox was 71,000 in the first three days after the launch and the daily revenues on iOS terminal was $2,393. [69]

The game is primarily addressed to teenagers, the main player group with 67% of under 16 active users. Tencent took a series of measures to overcome government policy on youth game addiction prevention, such as strict control on the online session duration for minors, age limitations, and added the educational scope to the game[70]. Roblox has in fact conducted activities both online and offline such as Creative Online Lab, special training camps and issued professional certificates. The website also offers a variety of educational tools

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[66] XIANG, Nina, *Parallel Metaverses, How the US, China and the rest of the world are shaping different virtual worlds*, Independently published, 2022.

[67] *Ibidem.*

[68] *Ibidem.*

[69] ZHU, Zhu 朱珠,YU, Yue 于越, *Téngxùn tuīchū "luóbù lè sī" yuán yǔzhòu sài dào bùjú huǒrè*, 腾讯推出《罗布乐思》元宇宙赛道布局火热 (Tencent launched "Roblox" and the Metaverse track gets hot), 国海证券股份有限公司, 2021. https://pdf.dfcfw.com/pdf/H3_AP202107191504708224_1.pdf ?1626687549000.pdf retrieved on 25-03-2023.

[70] XIANG, Nina, *Parallel Metaverses, How the US, China and the rest of the world are shaping different virtual worlds*, Independently published, 2022.

that have the advantage of enriching the platform with creative content. [71] The UGC content and social experience are the main competitive advantages of Roblox, which allow users to generate immersive content and build the virtual ecosystem. The experience, however, needs constant improvements to face the ever-increasing user base.

The Chinese version of Roblox, however, abruptly closed its servers in December 2021 and deleted all user data. The reason for such a shutdown is related to the Chinese government's strict controls on Internet and user-generated contents that do not meet the government's standards. Tencent stated that the company is currently working on an upgraded version of the game, but it is not sure when it is to be launched. [72]

Despite such setbacks, Tencent is steadily making moves towards the Metaverse and its updated version of the instant messaging app QQ is obtaining success among Gen Z users[73]. In 2003, QQ app was featured with "QQ Show (QQ秀)", a function that allows users to personalise their chat image with virtual avatars. Users could change hairstyle, make-up, clothes and facial expression to make their avatar look fashionable and use it as their profile image. This function was enthusiastically welcomed by netizens and resulted in an increased number of active users for Tencent[74]. The mobile version of QQ Show featured a new 3D function, "QQ Centimeter Show (厘米秀)" which allowed users to further personalise their virtual image with pre-set style and actions and to make it taller or smaller. QQ Centimeter Show pursued a more humanised and

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[71] Information retrieved from Roblox China official website https://robloxdev.cn/.

[72] XIANG, Nina, *Parallel Metaverses, How the US, China and the rest of the world are shaping different virtual worlds*, Independently published, 2022.

[73] CHAN, Celia, DENG, Iris, "QQ, *the Grandaddy of China's Social Media Scene, Gains New Life by Appealing to Generation Z*," South China Morning Post, 2018. https://www.scmp.com/tech/article/2162288 /qq-grandaddy-chinas-social-media-scene-gains-new-life-appealing-generation-z retrieved on 15-06-2023.

[74] "*Chāojí QQ xiù*" 超级QQ秀 (*Super QQ Show*), Baidu, 2022. https://baike.baidu.com/item /%E8%B6%85%E7%BA%A7QQ%E7%A7%80/59378818, last retrieved 26-03-2023.

interactive world experience.[75] The step further was taken in November 2021 with the upgraded version of QQ Show being launched. "Super QQ Show (超级 QQ秀)" first began as a small-scale deletion test, with users' data being deleted short after, and then began a large-scale test without deletion in January 2022. This new function, available in the message interface of QQ, supports richer personalisation. Users can decide the entire look of their avatar from face shape and hairstyle to clothes and accessories which can be freely matched by the user and can select items from the Super QQ Show Mall which features a wide range of brands. Moreover, users can generate actions with their avatars through motion and face capture technology which also detect their facial expression and make their avatar interact with other avatars in the "Paradise World of Super QQ Show (超级QQ秀的乐园世界).[76]

Figure 1: 超级QQ秀的乐园世界
Source: Jinghe

This place includes all kinds of social and entertainment features, such as performance templates, dances and plots for users, and it is free to explore. [77]

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[75] *Ibidem.*

[76] "*Chāojí QQ xiù*" 超级QQ秀 (*Super QQ Show*), Baidu, 2022. https://baike.baidu.com/item/%E8%B6%85%E7%BA%A7QQ%E7%A7%80/59378818, last retrieved 26-03-2023.

[77] *Ibidem.*

Super QQ Show is Tencent's move to create a social networking virtual platform, making a step further in building the kind of Metaverse it envisions. The company is already gaining experience in the field and has delivered successful platforms, which assures the company a pole position in the Metaverse race.

1.4.2 Alibaba 阿里巴巴

Chinese e-commerce giant Alibaba (*Ālǐbābā*, 阿里巴巴) has a different strategy for its Metaverse expansion. The company was founded by the English teacher Jack Ma (Ma Yun) in 1999 in Hangzhou with the aim of providing small Chinese businesses with a platform that would help them sell their products in China and abroad[78]. Alibaba.com was launched in 2007 as a B2B (business-to-business) platform where buyers and suppliers from all over the world engage. [79] The platform provides a wide range of products, from clothes to consumer electronics and machinery. The innovation Alibaba Group brought about lies in the ecosystem of the platform: it is structured as a community where businesses and consumers can interact freely and the platform provides all resources that are needed to make the business successful, thus helping with marketing strategies and promotions.[80] Alongside Alibaba.com, the company runs its business through Tmall and Taobao. Tmall (*Tiān māo*, 天猫) was founded in 2008 and actually is China's largest B2C (business to consumer) platform for branded products. Tmall primarily focuses on the affluent Chinese middle class and offers a wide range of premium shopping experiences. [81] Taobao (*Táobǎo*, 淘宝) was launched in 2003 as a C2C (consumer-to-consumer) and B2C e-commerce platform. [82] It can be understood as a digital mall where small businesses own

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[78] GLOWIK, Mario, "Case study Alibaba Group: A successful Chinese and international digital business giant?", *Global Strategies in Service Industry: Dynamic, Analysis, Growth*, 2017, pp. 96-105.
[79] MELNIK, Jeffrey. *China's "National Champions": Alibaba, Tencent, and Huawei*, "Education about Asia", 24, 2, 2019, pp. 28-33.
[80] MING, Zeng, "Alibaba and the Future of Business", Harvard Business Review, September-October 2018 issue, pp. 88-96.
[81] MELNIK, Jeffrey. *China's "National Champions": Alibaba, Tencent, and Huawei*, "Education about Asia", 24, 2, 2019, pp. 28-33.
[82] *Ibidem.*

their digital stores and sell their products to end consumers. Taobao is China's largest marketplace, [83] and counts 876 million monthly active users as of December 2022[84]. On Taobao, consumers can find any kind of products and enjoy special events and festivals featured with livestreams and special promotions.

In recent years, Alibaba has been venturing into the Metaverse and its aspirations to turn the company into a meta-commerce company, with core focus on cloud technology and retail, is clear. Alibaba knows that the Metaverse will bring extensive data needs and computer power, so it is investing in developing computer infrastructure for the Metaverse in order to become the computer capability provider[85]. For this purpose, Alibaba has developed Alibaba Cloud, which supports all Alibaba platforms at the moment and occupies 38.8% of the cloud market in China. Through Alibaba Cloud, the company provides the necessary technology to businesses that want to venture into the Metaverse, such as Remote Rendering, which supports the construction of high-quality metaverse materials and scenarios, Data Analytics and AI to bring together virtual and physical world, Internet of Things and Blockchain technology to ensure the traceability of data[86]. In September 2021 Alibaba Cloud launched *Yuanjin*, the infrastructure for cloud gaming the company hopes to furnish as Metaverse basic technology[87]. Moreover, Alibaba is investing in XR technology and has established a company in August 2021 specialised in the production of VR

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[83] GLOWIK, Mario. "Case study Alibaba Group: A successful Chinese and international digital business giant?", *Global Strategies in Service Industry: Dynamic, Analysis, Growth*, 2017, pp. 96-105.
[84] THOMALA, Lai Lin, "*Monthly active users of Taobao app in China 2020-2022*", Statista, 2023. https://www.statista.com/statistics/1327377/china-taobao-monthly-active-users/ retrieved on 16-06-2023.
[85] XIANG, Nina, *Parallel Metaverses, How the US, China and the rest of the world are shaping different virtual worlds*, Independently published, 2022.
[86] Alibaba Cloud official website, https://www.alibabacloud.com/solutions/metaverse, retrieved on 3-03-2023.
[87] "*Jùtóu dōu zài bùjú de yuán yǔzhòu, ālǐ yuán jìng rúhé cóng yún yóuxì qiērù*" 巨头都在布局的元宇宙，阿里元境如何从云游戏切入 (*The Metaverse where tech giants are entering, how does Alibaba Cloud cut in from cloud games*), Sohu.com, 2021. https://www.sohu.com/a/506442651_204728 retrieved on 16-07-2023.

headsets, which gives the company an advantage position in the market. [88] Also, the e-commerce giant established an XR Lab under its company Damo Academy to foster the research in 3D mapping, virtual objects visualisation, person construction and mapping models. These efforts indicate that the company intends to bring XR to its e-commerce business to enrich the whole shopping experience. [89] As a matter of fact, Alibaba was among the first businesses worldwide to bring VR into shopping with its Buy+ being launched in 2016 on Taobao.

Buy+ allowed customers to interact with virtual objects through images into environments that were built on 3D graphics, they could make real-time payment as if they were in a mall. The experience was accessible through VR headsets and smartphones. This function was updated in 2021 to create a holographic mall with virtual stores where users can walk around, view product details and place orders, as announced at Alibaba annual conference at the end of 2021. [90]

E-commerce is Alibaba's core business, and the company is striving to drive a revolution of online shopping, making it totally digital and immersive. Alibaba's first meta-commerce platform, "Metaverse Mall" for Taobao, was revealed for the "618 Shopping Festival" of 2022, China's second largest e-commerce shopping event. The company has created a fully optimised shopping venue to provide users with a brand new immersive and interactive shopping experience, that was accessible without VR equipment. Customers were enabled to view products in 3D and experience them in real-life scenarios. [91] The Mall is set in a real-life scenario with streets and squares but with a futuristic style obtained through

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[88] XIANG, Nina, *Parallel Metaverses, How the US, China and the rest of the world are shaping different virtual worlds*, Independently published, 2022.

[89] *Ibidem.*

[90] *Ibidem.*

[91] RYDER, Bethanie, *Taboao Launches 'Metaverse Mall' in Time for China's 618 Shopping Festival*, "JingDaily 精奢 ", 2022, https://jingdaily.com/taobao-launches-metaverse-mall-in-time-for-chinas-618-shopping-festival/ retrieved 26-03-2023.

floating information boards, interactive advertisements and routable skyscrapers. Users use their phone to access this 3D world and explore virtual stores, interact with objects, finalise purchases and engage in a variety of other activities. [92] The event succeeded and obtained a lot of attention from customers. Reasons are that this approach allows for higher user accessibility as all one needs is a smartphone, and that Metaverse Mall was launched in a moment when physical storefronts were still closed because of lockdowns and customers needed alternative means to shop. [93]

Figure 2: Taobao Metaverse Mall
Source: Tech Planet

Other Metaverse exclusive platforms were created by Alibaba for shopping festivities. It is the case of *Alimama*, Alibaba's monetisation platform used for fostering the affiliate network of Alibaba. For the 11.11 Shopping Festival, Alimama has created a space called "曼塔沃斯" (*Màntǎwòsī*) where consumers could

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[92] *Taobao "Metaverse Shopping" set to debut on China's mid-year e-commerce battle '618'*, "Dao Insight", 2022, https://daoinsights.com/news/taobao-metaverse-shopping-set-to-debut-on-chinas-mid-year-e-commerce-battle-618/, retrieved on 26-03-2023.

[93] RYDER, *Taboao Launches 'Metaverse Mall' in Time for China's 618 Shopping Festival*, "JingDaily 精奢 ", 2022, https://jingdaily.com/taobao-launches-metaverse-mall-in-time-for-chinas-618-shopping-festival/ retrieved on 26-03-2023.

browse virtual shops and engage in exclusive entertainment experiences through their avatars. [94]

Alibaba demonstrated that the Metaverse is a promising alternative to traditional shopping and opens uncountable business opportunities. The company will gradually build its Metaverse around its e-commerce platforms of Tmall and Taobao and mobile payment service Alipay, and it already has subsidiaries and laboratories specialised in VR and XR technologies to support this development. [95]

1.4.3 Bytedance 字节跳动

The Chinese entertainment company Bytedance (*Zìjié tiàodòng*, 字节跳动) has a similar Metaverse strategy to that of Tencent, as it seems to focus its efforts on entrance devices to the Metaverse. Bytedance is a quite young company compared to its competitors in Mainland China, but it is not lagging behind and has a market value of 1.4 billion RMB. [96] Bytedance was founded in 2012 by Zhang Yiming and operates in the entertainment industry with games and content platforms. Bytedance is now renowned for its short-video app TikTok, the Western version of *Douyin* (*Dǒu yīn*, 抖音), but the company's business range is wider. [97] *Toutiao* (*Tóutiáo*, 头条) is the first Bytedance product to be developed and it is an online platform that gathers news and contents and suggests them to users according to their previous interactions and reactions. The platform relies on AI technology to analyse users' activity and deliver them personalised and

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[94] RYDER, *Alibaba's Latest Web3 Project Proves A New Era Of Retail Is Officially Here*, "JingDaily 精奢 ", 2022, https://jingdaily.com/alibaba-metaverse-double-11-festival-retail/, retrieved on 16-06-2023.

[95] XIANG, Nina, *Parallel Metaverses, How the US, China and the rest of the world are shaping different virtual worlds*, Independently published, 2022.

[96] THOMALA, Lai Lin, *Leading internet companies in China as of 2022, based on market valuation*, Statista, 2023. https://www.statista.com/statistics/954867/china-leading-internet-companies-based-on-market-value/, retrieved on 16-03-2023.

[97] LIU, Yingcong, et al., "Research on the Acquisition of Pico by Byte Dance", *Proceedings of the 2022 2nd International Conference on Economic Development and Business Culture (ICEDBC 2022)*, Amsterdam, Atlantis Press, pp. 1265-1271.

more appropriate content. [98] Related to Bytedance core business of content creation, the company has developed *Huoshan* (*Huǒshān yǐnqíng*, 火山引擎), another version of *Douyin* which addresses third- and fourth-tier users. [99]

Concerning Bytedance strategic plan in the Metaverse, in August 2021 the company has acquired Chinese VR headset manufacturer Pico. Pico ranked first in the domestic market of VR producers and its all-in-one VR headset allows for a better experience, as delays in movement have been reduced and the view field has been expanded. [100] Both Bytedance and Pico have benefited greatly from the acquisition, as Pico was provided with more content and scenes for content creation and promotion, and Bytedance entered the VR market and the share it occupies is already notable. [101] Bytedance has also launched the Pico Store in 2022, an online platform which contains creative tools and allows users to access a wide selection of games and apps. [102] The integration of Pico's strong technical capabilities with Bytedance richness in content resources will push the Metaverse market a step further and Bytedance now can benefit from Pico's technology to enter the Metaverse. [103] To further expand its Metaverse portfolio in June 2022 when Pico absorbed the Chinese VR start-up PoliQ, which was previously acquired by Bytedance. PoliQ is the developer of the popular virtual social platform Vyou where users can create their own avatars. [104]

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[98] CHENG, Roger, RUI, Ma, *How ByteDance Became the World's Most Valuable Startup*, Harvard Business Review, 2022. https://hbr.org/2022/02/how-bytedance-became-the-worlds-most-valuable-startup, retrieved on 21-03-2023.

[99] XU, Tony, *Bytedance rebrands Huoshan to support Douyin*, Technode, 2020 https://technode.com/2020/01/09/bytedance-rebrands-huoshan-to-support-douyin/ retrieved on 29/03/2023.

[100] LIU, Yingcong, et al., "Research on the Acquisition of Pico by Byte Dance", *Proceedings of the 2022 2nd International Conference on Economic Development and Business Culture (ICEDBC 2022)*, Amsterdam, Atlantis Press, pp. 1265-1271.

[101] *Ibidem.*

[102] Pico Official Website https://www.picoxr.com/global/software/pico-store.

[103] LIU, Yingcong, et al., "Research on the Acquisition of Pico by Byte Dance", *Proceedings of the 2022 2nd International Conference on Economic Development and Business Culture (ICEDBC 2022)*, Amsterdam, Atlantis Press, pp. 1265-1271.
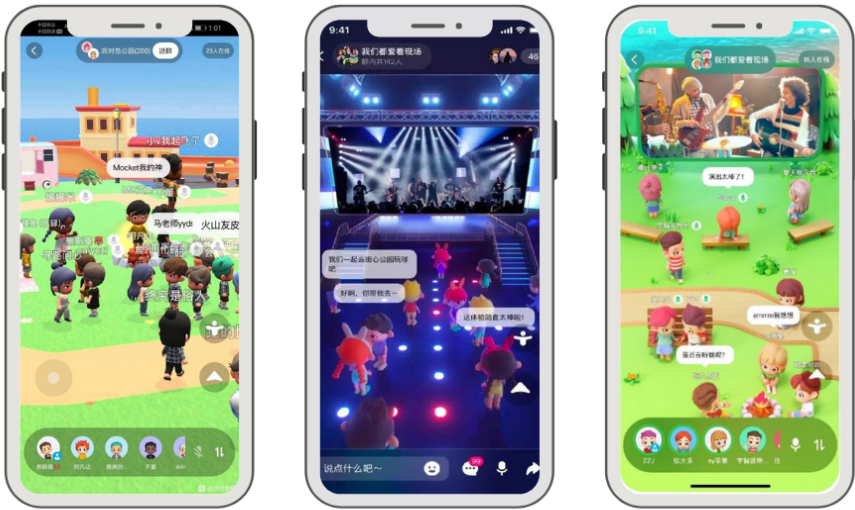
[104] LI, Jiaxiang, "*ByteDance's metaverse investments continue with acquisition of Chinese virtual social platform PoliQ*", South China Morning Post, 2022.

Bytedance has also invested $15 million on Reworld in 2021, the Chinese sandbox platform that aims to be "the best platform for user-generated content for teenagers" according to its official website. This move was Bytedance's response to Tencent partnership to bring Roblox to China and an attempt to gain ground in this field. Reworld, which is focused on China, counted more than 3,400 games and 1,800 creators in 2020, affirmed the platform itself. [105]

In January 2022, the company finally launched an internal test of its own Metaverse social networking app called Party Island (*Pàiduì dǎo*, 派对岛) and it went live for international testing in July. [106] Bytedance designed Party Island to replicate the success of *Zheli*, a viral proto-metaverse app that was taken down. Party Island appears as a digital community where users can personalise their avatars and use them to interact with their friends inside the platform. [107]

https://www.scmp.com/tech/big-tech/article/3183208/bytedances-metaverse-investments-continue-acquisition-chinese-virtual retrieved on 29-03-2023.

[105] YE, Josh, *TikTok owner ByteDance boosts investment in Roblox-like video game platform in race with Tencent to create the Metaverse*, "South China Morning Post, 2021. https://www.scmp.com/tech/tech-trends/article/3130476/tiktok-owner-bytedance-boosts-investment-roblox-video-game, retrieved on 29-03-2023.

[106] XIANG, Nina, *Parallel Metaverses, How the US, China and the rest of the world are shaping different virtual worlds*, Independently published, 2022.

[107] *ByteDance debuts first metaverse-like social app Party Island*, "Dao Insight", 2022, https://daoinsights.com/news/bytedance-debuts-first-metaverse-like-social-app-party-island/ retrieved on 28-03-2023.

Figure 3: Paidui Dao
Soures: 1. Youxi Gonglve, 2. Souhu, 3. Kuai Jishu.

Avatars-like-persons can replicate the actions of their daily lives into Party Island, like going to a concert, assisting a livestream or go to the cinema and watch movies and dramas that are owned by *Douyin* and *Xigua*, Bytedance other video app that streams videos without any time limitation. Thus, Party Island features rich digital experiences to entertain their users. [108]

Party Island has all the core characteristics of a Metaverse: it is live, allows for interaction, and people feel part of a large community. The app has no scope beside that of socialisation.

With *Paiduidao*, Bytedance has officially entered the Metaverse market. The company is expected to make further investments both in gaming and XR headsets to maintain its foothold in the segment. Party Island has been welcomed by Chinese teenagers and Bytedance expertise in content creation will be a valuable resource for future upgrades of the app or other experiments with the Metaverse. [109]

1.4.4 Baidu 百度

Chinese search engine Baidu is the company that created what many people perceive as China's first Metaverse platform, *Xirang*. Baidu was incorporated in 2000 by Robin Lin and Eric Xu and in two decades it has grown into China's most used search engine and the country's third-largest cloud service provider. [110] Baidu provides internet-related services and products, from translation webpage, internet encyclopaedia, maps and so on.

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[108] *ByteDance debuts first metaverse-like social app Party Island*, "Dao Insight", 2022, https://daoinsights.com/news/bytedance-debuts-first-metaverse-like-social-app-party-island / retrieved on 28-03-2023..

[109] *Ibidem.*

[110] SCOTT, Gordon, *Baidu: What It Is, What It Does, History, Stock, Vs. Google*, "Investopedia", 2023. https://www.investopedia.com/terms/b/baidu.asp, retrieved on 30-03-2023.

Baidu is among the first companies to have bet on artificial intelligence. Since the 2010s, the company has made investments in the research and development of AI technologies and applications, which also includes XR and machine learning.

"We are one of the very few companies in the world that offers a full AI stack, encompassing an infrastructure consists of AI chips, deep learning framework, core AI capabilities, such as natural language processing, knowledge graph, speech recognition, computer vision and augmented reality, as well as an open AI platform to facilitate wide application and use." [111]

Baidu has created a comprehensive AI ecosystem with Baidu Brain as its core engine. Baidu Brain is the company's open AI platform and was first launched in 2016. In 2021, Baidu Brain 7.0 latest upgrade was launched, and it is one of the world's largest open AI platforms according to Baidu. The latest version integrated a broader range of knowledge sources and deep learning to provide language, audio and visual outputs. [112] Such a consolidated AI base supports Baidu in developing a full range of AR capabilities, including space (mapping), content creation (3D rendering and avatars) and interaction (facial and gesture tracking), and a VR division. [113] Baidu's VR division has a wide array of assets comprehending all-in-one VR headsets, VR content creation tools, VR content display software and an AI-assisted 3D model creator. [114] Baidu VR boasts a number of applications in e-commerce, advertising, conference, training and education. Education is probably the most successful space for VR applications for Baidu, with "Red Education" which was designed for helping companies and organisations to study Chinese Communist Party history and meet mandatory requirements. Wearing

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[111] Baidu official website https://ir.baidu.com/company-overview/, retrieved on 30-03-2023.

[112] *Baidu Announces Upgraded Baidu Brain 7.0 and Mass Production of 2nd Generation Kunlun AI Chip*, PRNewswire, 2021.
https://www.prnewswire.com/news-releases/baidu-announces-upgraded-baidu-brain-7-0-and-mass-production-of-2nd-generation-kunlun-ai-chip-301358126.html retrieved on 30-03-2023.

[113] XIANG, Nina *Parallel Metaverses, How the US, China and the rest of the world are shaping different virtual worlds*, Independently published, 2022.

[114] *China's Metaverse and Its Retail Applications*, Daxue Consulting & AYO, 2022.

their VR headsets, employees can experience first-hand the Red Army's Long March. [115]

Years of dedication in research and development of AI technologies and applications enabled Baidu to collect a comprehensive technology stack to deliver the Metaverse. As a matter of fact, Baidu is the first Chinese company to have delivered the first mature Metaverse product, *Xirang* (*Xī rang*, 希壤) which is knowns as Land of Hope in Western countries, in December 2021. *Xirang* is Baidu's attempt to recreate a Horizon World-like Metaverse with Chinese characteristics and relies on the company's artificial intelligence and cloud computing technologies. [116] *Xirang* boasts a wide array of features and experiences, ranging from virtual real estate, gaming, education, entertainment, and social network. The rich and dynamic environment has both futuristic and historical traits, with buildings in ancient Chinese architectural style and skyscrapers. Users can take part in uncountable experiences, from art exhibitions to pools and other places where users can compete against each other. This mystical world is accessible both via phones, computers and VR headsets are required. [117]

To promote the launch of Land of Hope and generate interest, Baidu held its annual AI Developer Conference inside the venue Creator City. The area can be filled with 100,000 attendees all interacting in the same space. This astonishing number was possible thanks to Baidu's core technology support. Baidu Smart Cloud provided *Xirang* with large heterogeneous computer power, bandwidth connection, and infinitely scalable computing storage to allow large-scale data transmission. [118]

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[115] XIANG, Nina *Parallel Metaverses, How the US, China and the rest of the world are shaping different virtual worlds*, Independently published, 2022.
[116] *Ibidem.*
[117] *Ibidem.*
[118] *Ibidem.*

Figure 4: Xirang
Sources: Paoka Yuanyuzhou

Xirang is still in its initial stage of development. Attendees at the promotional conference experienced glitches and latency issues, some people complained about the environment which was not detail-oriented and roughly rendered. Despite such problems, Baidu is still the first Chinese company to have developed and publicly launched a platform that has all necessary core features to be considered a Metaverse. With Land of Hope, Baidu may be back on track and ready to remedy its previous strategic mistakes. [119] After spoiling the mobile internet opportunity, now Baidu is jumping into the Metaverse, which promises business opportunities without precedents.

These are only a few examples of companies' strategies for approaching the Metaverse in China. Also other tech titans are planning to make forays in the future digital worlds. Telecom company Huawei has launched its AR map in 2020 called Cyberverse and allows for immersive 3D landscape experiences, and in 2022 it announced a partnership with Fudan University for creating China's first Metaverse research Institute. Chinese game developer NetEase in 2022 released

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[119] XIANG, *Parallel Metaverses, How the US, China and the rest of the world are shaping different virtual worlds*, Independently published, 2022.

Yaotai, an app for virtual meeting. [120] Up to now, 100 conferences circa were held by universities and corporations. "Yaotai's technological foundation is consistent with that of our games, so we can use many of the existing capabilities of NetEase Games" affirmed head Liu Bai. The Metaverse is opening doors to many never seen before businesses. Ranmai Technology, in partnership with the Japanese company Aww Inc., is a developer of digital humans with hyper-realistic traits, a sector that is becoming a big hit in China. [121]

Major and minor companies are all working on their Metaverse plans, while also creating the country's infrastructure. All strategies, however, must be compliant with the central government's guidelines and regulations in order to benefit from the national mass economy.[122]

1.5 Governmental support to the Metaverse

The Metaverse is still in the developmental phase, but the impact it will have is already beginning to surface. At the economic level, those countries which already have accumulated the digital transformation and requirements will have a competitive advantage in the process of creating the Metaverse, and competition will rise abruptly. At the social level, the Metaverse will profoundly impact the social structure. The immersive experiences the Metaverse is all about may result in cognitive and behavioural issues of teenagers and may enhance criminal activities online. On the other hand, the Metaverse will also give birth to new opportunities of employment and business that are fully digital, with creativity being promoted in all fields. At the security level, because of its integrated technologies the Metaverse will show significant security issues and risks for both users and developers. The most critical issues concern cyber-attacks and the personal information issues. Nevertheless, the Chinese

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[120] DUDARENOK, Ashley, *Digital China: Metaverses for Business: How Companies in China and the rest of the world are exploring Web3*, Alarice International Limited, Hong Kong, 2023.
[121] *Ibidem.*
[122] XIANG, Nina, *Parallel Metaverses, How the US, China and the rest of the world are shaping different virtual worlds*, Independently published, 2022.

consumers' fascination with the Metaverse persists. The Central Government is paying close attention to development in this area. As for the Internet, China is likely to want to create a Metaverse that suits its economic, technical and political characteristics, so it is foreseeable that the Government will launch guidelines to promote the Metaverse development and to obtain a competitive advantage. [123]

The first step toward the Metaverse dates to 2018, when China's Ministry of Industry and Information Technology (MIIT) published its "*Guiding Opinions on Accelerating the Development of the Virtual Reality Industry*". It is a blueprint for the development of Virtual Reality devices and highlights R&D and content service provisions as basic requirements. [124] China is actively participating in the innovation process of VR, but the document stressed the fact that China lacks the necessary technology. Thus, the MIIT issues guidelines for solving these issues and sets clear objectives.

"By 2020, China's virtual reality industry chain will have been basically improved, the application in important economic and social industries and fields will have been deepened, certain industry technology innovation centers will have been built, remarkable breakthroughs in core and critical technological innovation will have been made, (...).

By 2025, the overall strength of China's virtual reality industry will have ranked high in the world, critical core patents and standards relating to virtual reality will have been possessed, certain virtual reality backbone enterprises with relatively strong international competitiveness will have taken shape, innovation capability will have been significantly enhanced, (...)." [125]

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[123] INTERESSE, Giulia, *China's Debut in the Metaverse: trends to Watch (Updated)*, "China Briefing", 2022, https://www.china-briefing.com/news/metaverse-in-china-trends/, retrieved on 21-02-2023.

[124] *Ibidem.*

[125] Original test from PKULaw.com "工业和信息化部关于加快推进虚拟现实产业发展的指导意见"; translation provided by lawinfochina.com. All links and details are found in the References section of the thesis.

Further relevant steps have been taken in 2021, in the same period as Mark Zuckerberg changing the name of its enterprise to "Meta". In October 2021, China Institute of Contemporary International Relations (CICIR), a think-tank affiliated to the Ministry of State Security, issued its first paper on the Metaverse concerning the need for lawmakers and regulations to prevent virtual crimes from happening. In *Metaverse and National Security*, the CICIR acknowledges the future potential of the Metaverse for shaping the digital economic ecology of China and the world but recognises that it will inevitably have an impact on China's national security, thus prompts a warning about the necessity of implementing laws and regulations to handle issues like economic crimes and other digital concerns. The same topic was also discussed during the Two Sessions in November 2021. During a press conference, the director of the Fourth Department of the Supreme People's Procuratorate Zheng Xinjian highlighted the importance of protecting netizen's personal data in the Metaverse. [126]

In November 2021, the government of Zhejiang province organised the first "Metaverse Industry Development Symposium", an annual meeting where experts, policymakers, entrepreneurs, and investors discuss the current state and future direction of the Metaverse industry in the province. All participants agreed on the fact that Zhejiang should be at the forefront of the Metaverse race[127]. In the same month, a milestone in a sustainable pursuit of the Metaverse was established with the creation of the first Metaverse Industry Committee under the China Mobile and Communication Association (CMCA). The executive director Yu Jianing told Global Times that

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[126] INTERESSE, Giulia, *China's Debut in the Metaverse: trends to Watch (Updated)*, "China Briefing", 2022, https://www.china-briefing.com/news/metaverse-in-china-trends/, retrieved on 21-02-2023

[127] *Building a Metaverse with Chinese Characteristics*, "The Economist", 2022, https://www.economist.com/china/2022/02/04/building-a-metaverse-with-chinese-characteristics, retrieved on 19-03-2023.

"major tasks ahead will include strengthening technological innovation and application integration for the industry, organising the training of professionals, and promoting new thinking related to Metaverse." [128]

With the creation of the Committee, China officially commits to the creation of the next generation of the Internet and actively engages in the global competition. In February 2022, seventeen companies joined the Committee, while first and second tier cities have incorporated the Metaverse into their local government action plans.

Shanghai was the first city to incorporate the Metaverse in its plan in December 2021, specifically it was included in the city's 14th Five Year Guidelines for the development of the electronics information industry. Covid-19 outbreak in the first half of 2022 heavily damaged Shanghai's economy and caused losses to the city's tourism and hospitality sector, to its manufacturing industry and financial centre. To foster the economic recovery, on July 8 2022, Shanghai released a new action plan for the promotion of the Metaverse, whose main target is 以虚强实 (*yǐxū qiángshí*), that is using the digital reality to strengthen the real economy. [129]

The Heilongjiang province, which is renowned for its industries and abundance of raw materials, was struggling to keep up with the digital economy. To overcome its backward position, in 2020 Heilongjiang released a 3-year action plan to transform the province into a live shopping hotspot. The province also has a strong focus on immersive experience related industries. Heilongjiang, in fact, is promoting metaverse immersive activities such as concerts, performances and videos and is actively promoting Metaverse uses in public service and healthcare. [130]

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[128] *China's first metaverse industry group inaugurated, looking into the new industry potentials*, "Global Times", 2021, https://www.globaltimes.cn/page/202111/1238811.shtml, retrieved on 19-03-2023.

[129] LIU, Zihao, *China Says No To Speculative All-Virtual Metaverse*, "JingDaily 精奢", 2022, https://jingdaily.com/china-metaverse-real-economy-industrial-power/, retrieved on 14-04-2022.

[130] FU, Zijing, *China aims to propel the real economy with virtual economy – Metaverse*, "Pingwest", 2022, https://en.pingwest.com/a/10513 retrieved on 18-04-2023.

Hefei and Wuhan cities have incorporated the Metaverse in their work report in January 2022, and Wuhan, together with Guangzhou and Hangzhou, is planning to provide subsidies for Metaverse-related R&D platforms and projects. [131]

Beijing is taking relevant steps in the field too, with strategic alliances to promote the development process of Metaverse.

In the same period, Guangzhou Huangpu District and Guangzhou High-tech Zone released the "Measures for Promoting Metaverse Innovation and Development", also referred to as the 10 Metaverse Measures. These guidelines focus on the Metaverse core technologies such as VR/AR, AI and digital twins and promote the industrial application of Metaverse-related technologies and business models, reported the department of the Hong Kong Special Administrative Region Government InvestHK. [132] With the 10 Metaverse Measures, the Great Bay Area took the lead in introducing Metaverse support policies and provided the area with relevant expertise in the field. It seems that local governments are more positive on the Metaverse than official departments, as they are actively promoting it as both an innovative technology and a potential source of revenue. [133]

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[131] FU, Zijing, *China aims to propel the real economy with virtual economy – Metaverse*, "Pingwest", 2022, https://en.pingwest.com/a/10513 retrieved on 18-04-2023.

[132] "*Guǎngzhōu shì huángbù qū gōngyè hé xìnxī huà jú guǎngzhōu kāifā qū jīngjì hé xìnxī huà jú guǎngzhōu shì huángbù qū kēxué jìshù jú guǎngzhōu kāifā qū kējì chuàngxīn jú guānyú yìnfā guǎngzhōu shì huángbù qū guǎngzhōu kāifā qū cùjìn yuán yǔzhòu chuàngxīn fāzhǎn bànfǎ de tōngzhī*" 广州市黄埔区工业和信息化局 广州开发区经济和信息化局 广州市黄埔区科学技术局 广州开发区科技创新局关于印发广州市黄埔区 广州开发区促进元宇宙创新发展办法的通知, (Bureau of Industry and Information Technology, Huangpu District, Guangzhou, Bureau of Economics and Information Technology, Guangzhou Development Zone, Bureau of Science and Technology, Guangzhou Development Zone, Science and Technology Innovation Bureau, Huangpu District, Guangzhou), 广州市黄埔区人民政府广州开发区管委员, 2022. http://www.hp.gov.cn/gzjg/qzfgwhgzbm/qgyhxxhj/xxgk/content/post_8171935.html retrieved on 30-03-2023.

[133] INTERESSE, Giulia, *China's Debut in the Metaverse: trends to Watch (Updated)*, "China Briefing", 2022, https://www.china-briefing.com/news/metaverse-in-china-trends/, retrieved on 21-02-2023.

Up to November 2022, Beijing did not explicitly state its position on the Metaverse, rather it stayed behind the curtains and closely watched the progress made in the field. However, on November 1, 2022, the MIIT released its "*Action Plan for the Integration and Development of Virtual Reality and Industrial Applications (2022-2026)*", a 4-year plan aimed at integrating VR with industrial applications. The action plan sets out concrete objectives for the development of the VR sector by 2026, which is estimated at 19 billion euros (149 billion RMB) and actually occupies over 10% of the global market for VR. [134] While being considered the follow-up of 2018 MIIT published *Guidelines*, this action plan goes deeper and includes specific technologies and applications.

"By 2026, key breakthroughs will be made in the key technologies of three-dimensional, integrated virtual and real immersive audio and visual. A new generation of human-friendly virtual reality terminal products will be constantly enriched, and the industrial ecology will be further improved. Virtual reality will have achieved large-scale application in important economic and social industries. We will have formed a number of backbone enterprises and industrial clusters with strong international competitiveness and created an industrial development pattern in which technologies, products, services and applications flourish together." [135]

The Government hopes to make VR devices available to the private sector, with 25 million headsets sold by 2026. The goal is to make VR more integrated into people's daily lives, with applications in a variety of areas, from industry, health, entertainment to education and culture, to further stimulate the growth of the real economy through data and the digital realm. It is no surprise, however, that the document does not mention the game sector, as Xi Jinping hopes to limit

[134] DING, Jeffrey, *ChinAI #206: China's Virtual Reality Push Gets Real*, "ChinAI Newsletter", 2022, https://chinai.substack.com/p/chinai-206-chinas-virtual-reality, retrieved on 19-03-2022.
[135] Original text from Ministry of Industry and Information Technology of the People's Republic of China official website; translation provided by Hine and Ding. All links and details are found in the References section of the thesis.

teenagers' online session duration.[136] Nevertheless, the Action Plan also encourages cities and provinces to actively promote VR applications and a few initiatives have been launched, but the enthusiasm seems to be more around the Metaverse. The Plan does not mention the Metaverse but still it is regarded as the first official move in support of it, as the VR technology it promotes is a major component of the Metaverse. [137]

The Metaverse is the technology of the future, and it represents an important challenge for China to establish its influence and dominance in the field. Continuous efforts will be needed to achieve the technological advancements required. China, however, will want to develop its own version of the Metaverse to suit its economic ambitions, policy directives and people's aspirations. The Government has always kept the financial sector under strict regulatory terms to prevent an over-speculation of the currency, and this degree of control will be maintained also in the Metaverse. In September 2021, The People's Bank of China banned all sorts of cryptocurrency transactions to prevent financial crimes like money laundry. Since then, NFTs, which are bought with cryptocurrency in the rest of the world, cannot be purchased with cryptocurrencies and cannot be traded nor used as a speculative means. [138] The Chinese NFTs have then been renamed as *digital collectibles* by platforms to dissociate from the banned version and resale is strictly prohibited.

In the future, any application of the Metaverse that supports the country' economic development and social goals are welcomed. China's Central Commission for Discipline Inspection and State Supervision claimed that "from the industry's standpoint, the Metaverse will be the goal of the next-generation internet development for a long period of time and will depend on core

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[136] DING, Jeffrey, *ChinAI #206: China's Virtual Reality Push Gets Real*, "ChinAI Newsletter", 2022, https://chinai.substack.com/p/chinai-206-chinas-virtual-reality, retrieved on 19-03-2022.
[137] *Ibidem.*
[138] BROOKE, *China Makes Cryptocurrency Transactions Illegal: An Explainer*, "China Briefing", https://www.china-briefing.com/news/china-makes-cryptocurrency-transactions-illegal-an-explainer/, retrieved on 31-03-2023.

breakthroughs, evolution, and changes in the fundamental technology and arithmetic level".

Chapter 2
China's Metaverse Retail Applications

China is poised to be an early adopter of the Metaverse. One of the main factors contributing to it, is the strong support from the Central Government. The Chinese Communist Party is an active promoter of the country's digitalisation and currently China is on the path to become the leading technological nation globally owing to targeted programs and the planned economy.

There are other factors that participate in making China the leading country in the Metaverse race. First, the rapid development of the technological sector has determined the shift from physical activities to e-commerce, and from e-commerce to virtual commerce, thus forcing companies to change their selling strategies[139]. Second, Chinese consumers who are accustomed to changes and are early adopters of emerging technologies. [140] While people in the rest of the world were testing their first domestic appliances, China was experiencing the Cultural Revolution and even after the Opening-up Reforms launched by Deng Xiaoping the country stayed backward. It was only in the late 1990s that China entered the latest technology market, skipping several stages in the field. As a matter of fact, Chinese people did never have credit cards, home computers nor CD players, rather they went straight to owning mobile phones and using them as a solution to most of their daily life activities. Hence, Chinese people are very optimistic about the digital future. [141] According to a survey conducted by Ipsos in 2022, 78% of people interviewed in China have positive feelings about engaging with XR in their future daily life. China scored the highest ratio across all countries surveyed. Chinese people also believe that the Metaverse and the XR

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[139] BOURLAKIS, Michael et al., "Retail spatial evolution: paving the way from traditional to metaverse retailing". *Electronic Commerce Research*, 9, 2009, p 135-148.
[140] DUDARENOCK, *Ashley, Metaverses For Business: How Companies in China and The Rest Of The World Are Exploring Web3*, Digital China 2023.
[141] *Ibidem.*

technology will have a significant impact on the daily lives of people over the next 10 years, particularly in the field of digital entertainment and retail[142]. The main drivers for the Metaverse adoption are the younger Chinese generations of consumers, namely Millennials and Generation Z. These two groups of consumers hold enormous purchasing power and are shaping the new consumer trends of the Chinese market, urging brands to develop new products and services to satisfy their needs. [143] This is particularly relevant in the luxury industry, whose largest market share is occupied by Millennials and Generation Z. Luxury brands are confronted with the challenge of speeding up their digitalisation and adopting Metaverse applications to engage with their affluent customers in new ways. [144]

China has the perfect ecosystem for the development of the Metaverse, and many experts in the field believe that the country will be the first to adopt it. *Xirang* was already acknowledged as the "first Metaverse" in 2021, [145] and other applications such as NFTs and virtual idols are widespread across the country, while they still have to gain momentum in the West.

2.1 Why traditional retail is transitioning to the Metaverse

The retail industry has gone through different stages of development driven by the Internet emergence, new information technology, social media and communication, and digitalisation is now creating new scenarios for retailers for

[142] Ipsos, *How the World Sees The Metaverse And Extended Reality: A 29-Country Global Advisor Survey*, Game Changers Ipsos, 2022.

[143] JIA, Zhou, et al, *China's Gen Z are coming of age: Here's what marketers need to know*, McKinsey, 2020, https://www.mckinsey.com/cn/our-insights/our-insights/chinas-gen-z-are-coming-of-age-heres-what-marketers-need-to-know, retrieved on 14-06-2023.

[144] LANNES, Bruno, XING, Wei, *Setting a New Pace for Personal Luxury Growth in China*, "Bain & Company", 2023. https://www.bain.com/insights/setting-a-new-pace-for-personal-luxury-growth-in-china/ retrieved on 29-05-2023.

[145] DUDARENOK, Ashley, *Digital China: Metaverses for Business: How Companies in China and the rest of the world are exploring Web3*, Alarice International Limited, Hong Kong, 2023.

establishing new sales channels, reshaping their communication and offerings. [146] The Covid-19 crisis has determined changes in business models as well. The epidemic policies and health concerns caused irreversible damages to traditional offline business, which are no longer able to operate according to the old business models and are now seeking new ways to engage with their customers. Consumer behaviours have changed as well, and nowadays customers are seeking personalisation in products and socialisation in experiences. [147] Papagiannidis, Bourlakis and Li (2009) have outlined the transition of traditional retail to Metaverse retail.

The emergence of the Internet and mobile phones in the mid-1990s marked the beginning of significant changes in the retail industry, leading to a shift from traditional retail to digital retail, also known as e-commerce. This transition offered several advantages, such as reduced initial capital investment and the ability to create personalised products and services using customer data collected through webpages. However, e-commerce also posed new challenges for retailers, including the need for skilled digital employees and a higher return ratio due to customers being unable to try out products physically before purchasing, leading to potential disappointment regarding product quality, especially with luxury goods. [148] Despite these challenges, e-commerce gained popularity among two specific consumer segments: younger consumers who grew up in the digital age and were familiar with online shopping, and those who preferred the convenience of shopping from home and appreciated the wider selection of products and lower prices offered by online stores. As a result, online retailing became increasingly successful, particularly among Millennials and Gen Z consumers. To meet the changing needs of these consumers, retailers had to develop new business strategies, including the use of targeted marketing

[146] BATCHER, Natalie, *Metaverse Retailing – An analysis of the current status and future potentials of the metaverse in the retail and consumer goods industry*. Master thesis, 2022.
[147] BATCHER, Natalie, *Metaverse Retailing – An analysis of the current status and future potentials of the metaverse in the retail and consumer goods industry*. Master thesis, 2022
[148] BOURLAKIS, Michael, et al., "Retail spatial evolution: paving the way from traditional to metaverse retailing". *Electronic Commerce Research*, 9, 2009, p 135-148.

tools and offering tailored products, to establish more meaningful and successful customer relationships. [149]

The retail industry is undergoing its second major transformation with the advent of the Metaverse, which originally emerged as online games but has now evolved into alternative realities. With the exponential growth of Metaverse users, people are spending more time on these platforms, leading to a shift of social and business activities to the Metaverse, where both physical and virtual worlds are integrated. [150] Consumers now expect new and unique experiences in the Metaverse, where they can interact with products in a three-dimensional way before purchasing them and enjoy a different shopping experience than the one found in brick-and-mortar stores. This demand for entertaining and immersive shopping experiences has led to the emergence of Metaverse commerce, or virtual retail, as the next step beyond traditional e-commerce. Virtual retail involves buying and selling products and services in virtual spaces, such as virtual worlds or platforms that can be accessed through XR devices and mobile phones. [151] These spaces take the form of digital storefronts, virtual malls, and marketplaces, which allow for immersive shopping experiences where users can purchase both real and virtual products using digital currencies or real money. [152] Through their avatars, netizens can explore the virtual marketplace, try on clothes and accessories, and complete purchases.

Metaverse commerce is a fast-growing sector, and the rise of virtual reality and augmented reality technology discloses a plethora of opportunities for brands. A Statista report from 2023 expects the Metaverse commerce annual growth rate to be 29.8%, with a resulting projected value of 51.5 billion US dollars in 2030. [153] The report shows that the revenue in the Metaverse retail for 2023 is expected to

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[149] BOURLAKIS, Michael, et al., "Retail spatial evolution: paving the way from traditional to metaverse retailing". *Electronic Commerce Research*, 9, 2009, p 135-148.
[150] *Ibidem.*
[151] *Metaverse eCommerce – China*, Statista Market Insight 2023. https://www.statista.com/outlook/amo/metaverse/metaverse-ecommerce/china retrieved on 17-04-2023
[152] *Ibidem.*
[153] *Ibidem.*

reach 8.29 billion US dollars, the highest revenue generated in the virtual retail sector in the world. The Statista study also reveals other interesting data concerning the future of Metaverse ecommerce. By 2030, the virtual retail segment is expected to hit 21.6% user penetration rate, compared to 8.3% expected for 2023, with 317.9 million users expected to be active on virtual retail platforms. Players in the luxury fashion industry are at the forefront of the Metaverse race: many luxury brands have already begun to explore the potential of the Metaverse and to integrate them in their omnichannel strategy to foster customer engagement and sales. [154] The reason why Metaverse retailing is becoming so popular among consumers is that it offers the opportunity to overcome many of the limitations of physical activities and traditional e-commerce, particularly the inability to test a product's features before buying. [155]

As a result, the Metaverse is paving the way for a new retail environment that promises to offer exciting and innovative shopping experiences. [156]

2.2 Chinese consumers attitude towards the Metaverse

In China, advances in Metaverse's underlying technology and XR devices have inevitably made people willing to explore the virtual realm and to increasingly adopt Metaverse platforms; most credit for pushing forward the virtual e-commerce, however, is given to Chinese people. [157] From 1990 to 2008, owing to the continuous investment of foreign enterprises, China was able to develop its own high-tech sector and Research and Development centres, while the government's significant investments in the education sector contributed to the rise of a new sophisticated working class. Amid this prosperous economic

[154] LANGER, Daniel, *Why Luxury Brands Must Be Strategic With NFTs in the Metaverse*, "JingDaily 精奢", 2022 https://jingdaily.com/metaverse-art-luxury-brands-prada-gucci/ retrieved on 18-06-2023.

[155] BOURLAKIS, Michael, et al., "Retail spatial evolution: paving the way from traditional to metaverse retailing". *Electronic Commerce Research*, 9, 2009, p 135-148.

[156] BATCHER, Natalie, *Metaverse Retailing – An analysis of the current status and future potentials of the metaverse in the retail and consumer goods industry*. Master thesis, 2022.

[157] DUDARENOK, Ashley, *Digital China: Metaverses for Business: How Companies in China and the rest of the world are exploring Web3*, Alarice International Limited, Hong Kong, 2023.

condition, China's GDP increased significantly, with an average speed growth of 9% between 1989 and 2022. [158] According to the report of the Eighteenth National Congress of the CPC of 2020, the estimated China's GDP and per capita income of both rural and urban residents would double that of 2010s, thus the expected per capita income should have been 8,000 US dollars. However, a report from the International Monetary Fund stated that China's per capita income in 2018 exceeded 9,600 US dollars, far above the target of that year. [159] As matter of fact, in 2021 China per capita GDP reached 12,562 US dollars. [160]
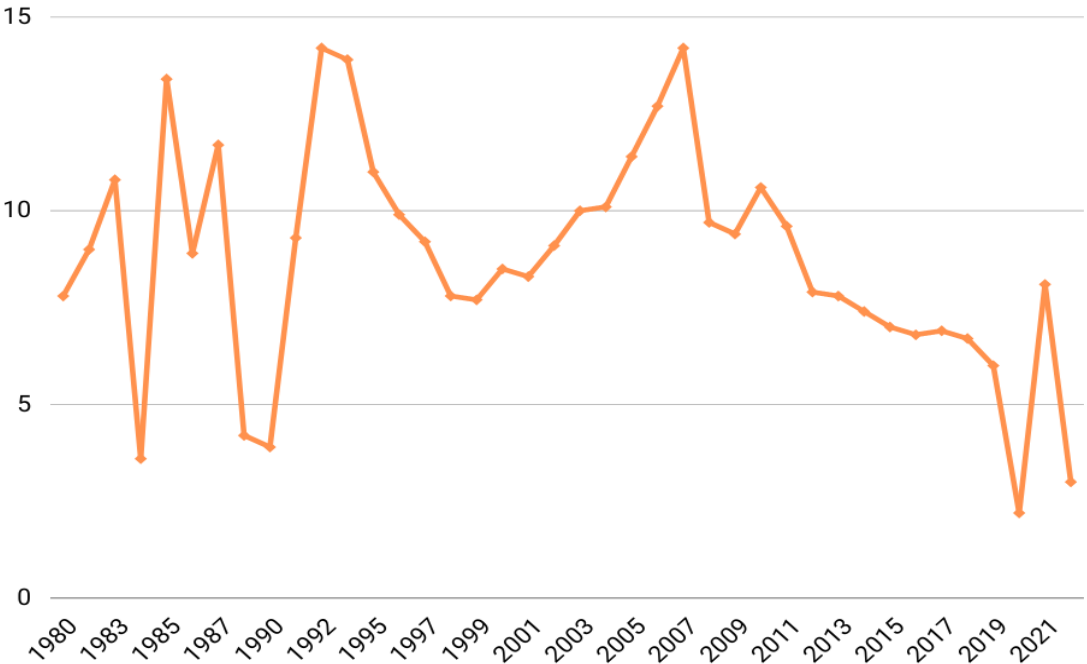
Figure 5: China's GDP growth rate
Source: National Bureau Statistics of China

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[158] *China GDP Annual Growth Rate*, "Trading Economics", 2022.
https://tradingeconomics.com/china/gdp-growth-annual retrieved 11/03/2023.
[159] HAN, Xiuyun 韩秀云, 韩秀云讲经济 (Han Xiuyun Talks about Economy), CITIC Publishing House, Beijing, 2020.
[160] TEXTOR, C., *Gross domestic product (GDP) per capita in current prices in China from 1985 to 2022 with forecasts until 2028*, "Statista", 2023.
https://www.statista.com/statistics/263775/gross-domestic-product-gdp-per-capita-in-china/ retrieved on 18-03-2023.

Chinese people have then seen a significant increase in their personal income, and consequently there has been a corresponding increase in expenditure, which has contributed to an overall improvement in the quality of life.

Chinese consumer behaviour has changed over time. Currently, Chinese consumers are in the fourth stage of development in their consumer expenditure, according to Han Xiuyun (2020), and what they are looking for is personal fulfilment and a higher quality of life, which involves seeking spiritual prosperity. Particularly, Chinese consumers are seeking solutions that save time and energy, making their daily lives more convenient. This shift of interest is a response to the increasing busyness of modern life, as individuals spend more time at work and have less free time available. This situation has determined an incremental usage of online services, such as retail platforms. [161] The CNNIC (China International Network Information Centre)[162] observed that China had 1,051 billion active netizens in June 2022, a number that increased by 19.19 million users compared to December 2021, and the online shopping activity takes up 80% of all internet users. The National Bureau of Statistics revealed that e-commerce sales increased by 4% in 2022, and it still occupies a large share of total retail sales in consumer goods in China. [163] According to a 2021 eMarketer report, the Chinese share of e-commerce sales has surged to 44%, while the UK and US experienced more gradual growth, with increases of 27.5% and 14.5% in

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[161] HAN, Xiuyun 韩秀云, "Hán Xiùyún Jiǎng Jīngjì" 韩秀云讲经济 (Han Xiuyun Talks about Economy), CITIC Publishing House, Beijing, 2020. In his speech, Han Xiuyun stated that it is possible to identify four stages in the development of consumer expenditure in China. The first phase is characterised by a focus on meeting basic life needs, such as food and clothing. During the second phase, consumers begin to invest in household appliances to simplify tasks such as cleaning, food preservation, and entertainment. In the third phase, consumers aim to improve their overall quality of life by purchasing a house and a car. The final stage is marked by a shift towards seeking personal fulfilment and higher quality of life, consumers now "begin to seek spiritual prosperity". Chinese people have changed their consumer behaviour over time, and as citizens' income levels have risen, so has their level of expenditure.

[162] *The 50th Report on China's Internet Development*, CNNIC, 2022.

[163] *Total Retail Sales of Consumer Goods in December*, National Bureau of Statistics of China, 2023. http://www.stats.gov.cn/english/PressRelease/202301/t20230118_1892301.html retrieved on 18-03-2023.

online retail sales, respectively[164]. The Chinese online market holds significant potential for growth, with online sales expanding at a faster pace than in other countries. Both local and international companies have been eager to seize the opportunity to gain their share of the Chinese e-market. Chinese tech giants have launched their retail platforms. Tmall owned by Alibaba, JD.com, Xiaohongshu (known as Little Red Book in Western countries), Suning and Pinduoduo are among the most popular e-commerce marketplaces in China. [165]

With the Covid-19 pandemic and heavy restrictions, the offline retail industry had a negative impact, causing many storefronts to close their business. On the other hand, the Covid has had a very different impact on China's online retail industry and has even accelerated the digitalisation of many businesses. Despite the slow-down in GDP's growth, which reduced by 3%, [166] and a sense of uncertainty, Chinese consumers continued to spend their money on online retail platforms and to invest in luxury goods. This trend has been driven by Chinese younger generations, who are digitally savvy and particularly sophisticated in their tastes. Millennials and Generation Z have already contributed to the booming of new shopping experiences, such as live e-commerce and community group buying on social platforms, but now they are demanding for more experience-oriented shopping patterns and for closer ties with their favourite brands, therefore paving the way for new retail business models, such as the Metaverse. [167]

[164] CRAMER-FLOOD, Ethan, *In global historic first, ecommerce in China will account for more than 50% of retail sales*, "eMarketer, Insider Intelligence", 2021. https://www.insiderintelligence.com/content/global-historic-first-ecommerce-china-will-account-more-than-50-of-retail-sales retrieved on 19-03-2023.

[165] *Ibidem*

[166] TEXTOR, C., *Gross domestic product (GDP) per capita in current prices in China from 1985 to 2022 with forecasts until 2028*, "Statista", 2023. https://www.statista.com/statistics/263775/gross-domestic-product-gdp-per-capita-in-china/ retrieved on 18-03-2023.

[167] JIA, Zhou, et al., *China's Gen Z are coming of age: Here's what marketers need to know*, McKinsey, 2020, https://www.mckinsey.com/cn/our-insights/our-insights/chinas-gen-z-are-coming-of-age-heres-what-marketers-need-to-know, retrieved on 14-06-2023.

As a decade ago, retail in China transitioned from offline to online shopping to satisfy consumer's need of time and cost saving benefits, in the near future there will be another shift from online shopping to digital shopping in the Metaverse, which will cater to the needs of an increasing number of consumers.

According to some research, Chinese consumers are those who are most willing to engage with virtual reality. The global market intelligence firm IDC estimated that two/thirds circa of Chinese netizens are looking forward to engaging in the new social digital world, and by 2025 at least 3% of Chinese internet users (37 million people) will already have their virtual identity and avatar, as highlighted by the Statista whitepaper *Building The Chinese Metaverse* (2022). According to an iiMedia Research survey conducted in 2021, [168] the average Chinese netizens are already aware of the Metaverse, with 85% of the population having a strong, good, or basic understanding of it. According to Favernovel's whitepaper, 58% of Chinese consumers have already used VR/AR devices once, and most of them believe that shopping experiences empowered by VR/AR will be the future of retailing.
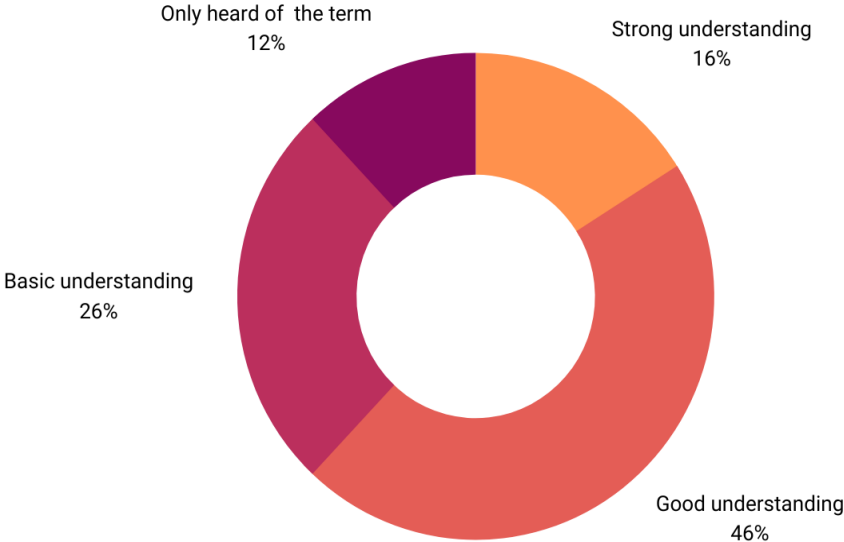

Figure 6: People's understanding of the term 'Metaverse'
Source: iiMedia

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[168] *Ài méi zīxún |2021 nián zhōngguó yuán yǔzhòu hángyè yònghù xíngwéi fēnxī rèdiǎn bàogào,* 艾媒咨询|*2021年中国元宇宙行业用户行为分析热点报告, (iiMedia Consulting | 2021 China Metaverse Industry User Behavior Analysis Hotspot Report),* "iiMedia.cn", 2022. https://www.iimedia.cn/c400/82999.html retrieved on 10-03-2023.

The Metaverse trend is also emerging in the luxury industry. Bain & Company is expecting changes in what luxury customers buy, moving beyond physical goods to the full spectrum of luxury spend, with experiences and experience-based goods to fully recover from pandemic, [169] thus many luxury houses have begun to integrate the Metaverse into their retail strategies. Morgan Stanley revealed that the Metaverse will account for 10% of luxury brand revenues by 2030, with a positive impact on profit margins that will reach the 25% of luxury brands' total profit by 2030. [170]

The tendency toward Metaverse adoption has been primarily driven by Millennials and Generation Z. Chinese Millennials and Generation Zers are the frontrunners of the digitalisation trend, driving the transition from traditional e-commerce to Metaverse e-commerce.

Born between 1981 and 2010, these digital natives and e-commerce generations have a strong attachment to the Internet. They primarily rely on social media and online platforms for shopping inspiration, often following trusted Key Opinion Leaders (KOLs) and celebrities. [171] As the largest market segment, they hold immense potential for luxury brands. Millennials and Gen Zers are not buying luxury goods to signal their social status, like older generations used to, but because of their personal taste and the quality of craftsmanship. [172] These consumers, despite their young age, already hold a considerable purchasing power and are therefore taking their lead on the future of digital and luxury retail in China. Millennials and Gen Zers are also accustomed to innovation and expect brands to engage with them through digital mediums, ranging from

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[169] D'ARPIZIO, Claudia, et al. "Renaissance in Uncertainty: Luxury Build on Its Rebound", *Bain-Altagamma Luxury Goods Worldwide Market Study*, Bain & Company, 2022.

[170] CHANDAR, Vija. *Investing in the Metaverse: New opportunities in virtual worlds*", "Morgan Stanley", 2022 https://www.morganstanley.com/articles/metaverse-opportunities-virtual-reality-augmented-reality-technologies retrieved 8-03-2023

[171] *The secrets to the 5 trillion CNY Chinese Gen Z market: Douyin and Guochao*, Daxue Consulting, 2022. https://daxueconsulting.com/gen-z-consumers-china/ retrieved on 18-06-2023.

[172] *Inside LVMH Certificate: May 2023 promotion*, Course issued by LVMH, 2023.

virtual consultations with brand experts to virtual events, personalised products, and augmented reality (AR) technology.

2.2.1 Millennials

Chinese millennials have emerged as a driving force in Chinese consumption and represent the future of the luxury industry in China. Born between the 1980s and 1990s, they account for 31% of the Chinese population, totalling over 400 million consumers. With their significant impact on the economy, Chinese millennials are projected to make up about three-quarters of the working population by 2025, enjoying favourable financial conditions with an average annual income of $52,000 USD. [173] These people are more educated than older generations and are increasingly concerned with socio-economic issues such as social responsibility and sustainability. Millennials were raised in a prosperous economic environment and in the era of the one-child policy adoption, thus being the only child in the family were used to having all sorts of treatments and attention. This background is reflected in Millennials' spending behaviour: they prioritise desires over their needs; they are demanding and willing to spend for exclusive and personalised experiences. [174]

These digitally acumen consumers are at the forefront of Chinese internet shoppers, making up 54% of the online shopper base. With smartphones in hand, Chinese millennials utilise these devices extensively and in versatile ways compared to their counterparts in Western countries. [175]

Distinct spending habits define Chinese millennials, including their willingness to pay a premium for high-quality and exclusive goods and services. Personal experiences and self-expression are key drivers when making purchasing

[173] DUDARENOK, Ashley, et al, *Mega Report: China E-commerce, Marketing and Digital Space* 2023, "Alarice" and "Chozan", 2023.

[174] *Understanding Chinese Millennials: Who Are They and What Do They Want?*, ChoZan, 2022. https://chozan.co/blog/understanding-chinese-millennials/#Early_Adopters_of_the_Metaverse retrieved on 28-05-2023.

[175] DUDARENOK, Ashley, et al, *Mega Report: China E-commerce, Marketing and Digital Space* 2023, "Alarice" and "Chozan", 2023.

decisions. They seek brands that offer unique and personalised experiences, while also valuing authenticity and alignment with their values and beliefs. As a result, Chinese millennials exhibit strong brand loyalty, particularly towards high-end brands. [176]

Additionally, Chinese millennials' desire for exclusivity has driven the rise of niche brands. They prioritise quality of life and personal aesthetics, including luxury products. Chinese Millennials display a strong affinity for luxury goods and experiences, and they are significant contributors to the growth of luxury spending in China. These young people purchase luxury products as a means of self-realisation and expression of their identity, as it has been shown that consumers prioritise goods produced by luxury brands that resonate with their personal values. [177] Furthermore, Millennials are very sophisticated customers with a relevant maturity in luxury, as they start buying luxury at earlier ages compared to their Western counterparts. As reported by a Nikkei Asia article, people are buying Porsche cars at an average age of 56, while in China the average buyer is 36. It is no surprise that luxury companies are investing to engage with these consumers via experiences that enhance brand awareness and customer engagement. [178] Forecasts indicate that Chinese millennials will account for 40% of global luxury goods sales by 2024, with approximately 58% of this group falling between the ages of 18 and 30. [179]

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[176] *Understanding Chinese Millennials: Who Are They and What Do They Want?*, ChoZan, 2022. https://chozan.co/blog/understanding-chinese-millennials/#Early_Adopters_of_the_Metaverse retrieved on 28-05-2023.

[177] *LVMH-SMU Luxury Conference 2021: The Future Of Luxury In Asia*. XUE, Rane and GU, Xiaolei intervention.

[178] ABE, Kentaro, *Millennials inject new vigour into China's luxury market*, "NIKKEI Asia", 2018, https://asia.nikkei.com/Politics-Economy/Economy/Millennials-inject-new-vigor-into-China-s-luxury-market retrieved on 30-05-2023.

[179] *Xiāofèi jiàngjí? Zhōngguó jiāng dàidòng quánqiú shēchǐ pǐn shìchǎng 75%de zēngzhǎng*, 消费降级？中国将带动全球奢侈品市场75%的增长.*(Consumption downgrade? China will drive 75% of global luxury market growth)*, "Sina", 2018. https://finance.sina.com.cn/consume/xiaofei/2018-09-30/doc-ifxeuwwr9932834.shtml retrieved on 31-05-2023.

Millennials are also highly interested in the Metaverse, second only to Gen Z. Millennials grew up with computers and the Internet, and thus they are accustomed to relying on digital spaces to socialise with other people. Moreover, they have a positive mindset toward the future, thus they are supporters of emerging technologies and enthusiastic about the Metaverse. To truly engage with them, however, it is crucial to offer more than just new shopping experiences; the Metaverse should provide a richer and more nuanced environment that aligns with their interests and hobbies in the real world. [180]

2.2.2 Generation Z

Chinese Generation Z is the consumer segment that shows the most potential for growth. Gen Zers are born between the second half of the 1990s and the 2010s and are the first digital generation. [181] In 1995, the first personal computers entered the homes of Chinese people, and from that year on a plethora of innovations were disclosed, from search engine Baidu established in 2000 to the rise of e-commerce and metaverses in the early 2020s. [182]

Gen Z is the second biggest consumer group in China and accounts for 19% of total population, which translates into 260 million people. [183] These young people were raised throughout the country's improvement of national strength and living standards, thus they largely enjoyed a better quality of life and accessed higher consumption levels. As a consequence, Gen Zes are more self-oriented and it is a major motivation for their consumption choices. [184] Furthermore, being

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[180] *Understanding Chinese Millennials: Who Are They and What Do They Want?*, ChoZan, 2022. https://chozan.co/blog/understanding-chinese-millennials/#Early_Adopters_of_the_Metaverse retrieved on 28-05-2023.

[181] *Gen Z: A Rising Power in the Chinese Market and 7 Characteristics of their Digital Lifestyles*, ChoZan, 2019. https://chozan.co/blog/gen-z-the-rising-power-in-chinese-market/#Read_more_related_posts retrieved on 01-06-2023.

[182] DUDARENOK, Ashley, et al, *Mega Report: China E-commerce, Marketing and Digital Space* 2023, "Alarice" and "Chozan", 2023.

[183] *Ibidem.*

[184] *Gen Z: A Rising Power in the Chinese Market and 7 Characteristics of their Digital Lifestyles*, ChoZan, 2019. https://chozan.co/blog/gen-z-the-rising-power-in-chinese-market/#Read_more_related_posts retrieved on 01-06-2023.

exposed to the internet and smartphones from an early age, Chinese Gen Z are the most active internet users; they currently account for 28% of total internet users. According to a Statista report, Gen Z users spend nearly 160 hours per month online, engaging in activities such as browsing social media, utilising online-to-online (O2O) services, and online shopping. They are also the consumer segment with the highest expenditure in China. [185] Despite the fact that around 50% of them are studying students, 20% of Gen Z consumers are capable of spending more than 5,000 RMB in online consumption, while 25% can spend above 3,000 RMB and 20.5% have a disposable income up to 3,000 RMB. [186] According to the National Bureau of Statistics, Gen Z consumption scale almost reached 5 trillion RMB accounting to 11.2% of China's total consumption in 2021. [187]

It is possible to derive that Gen Z has very different consumption patterns from the previous millennial generation.

In the first place, Gen Z have always been accustomed to internet socialisation, and meeting online with their friends is normal. Thus, migrating social activities from online to virtual is seen as a natural evolution to them. Being digital natives, Gen Z primarily rely on social media and online platforms also for shopping inspiration, often following trusted Key Opinion Leaders (KOLs) and celebrities. [188] These young consumers are also accustomed to innovation and they actively seek the latest products and items from new collections to stay up-to-date with trends.

[185] MA, Yihan, *Generation Z consumers in China – statistics & facts*, "Statista", 2023. https://www.statista.com/topics/9889/gen-z-consumers-in-china/#topicOverview retrieved on 23-05-2023.
[186] TEXTOR, C.,, Monthly *Disposable Income of Chinese Gen Z as of January* 2021, Statista, 2022. https://www.statista.com/statistics/1257061/china-monthly-disposable-income-of-generation-z/, retrieved on 02-05-2023.
[187] *The secret to 5 trillion CNY Chinese Gen Z market: Douyin and Guochao*, Daxue Consulting, 2022. https://daxueconsulting.com/gen-z-consumers-china/ retrieved on 17-04-2023.
[188] DUDARENOK, Ashley et al, *Mega Report: China E-commerce, Marketing and Digital Space* 2023, "Alarice" and "Chozan", 2023.

Gen Zers expect their favourite brands to be reactive and promptly adopt emerging technologies to engage with them through digital mediums, ranging from virtual consultations with brand experts to virtual events, personalised products, and augmented reality (AR) technology. [189] Being accustomed to novelty, however, Gen Z are open to trying new products and services and exhibit little brand loyalty, often switching products to experiment. According to a Daxue Consulting report, 54% of Gen Zers aim to try the ultimate experience, while another 38% frequently explore different options. [190]

Secondly, Gen Z has a strong sense of self-expression and are seeking products that express their personality and stand for their values. [191] They attach importance to personalisation of products. Chinese youth, who place importance on self-expression and individualization, have embraced the concept of avatars, the digital representation of themselves that is used online and in virtual worlds to interact with other users. Avatars are fully customisable and Gen Z's, who have a strong attention for their online persona and aesthetics, are willing to increase their expenditure on virtual elements to create the best digital version of themselves. [192]

Thirdly, Gen Zers are affluent luxury shoppers. These young consumers display expertise in the luxury market, and the younger generation is expected to make up a growing portion of this sector in the coming years, according to Bain & Company. Spending on luxury goods by Gen Z is projected to increase three times faster than that of other generations, reaching one-third of the overall luxury market by 2030. This trend is driven by Gen Z's inclination to start

[189] *Gen Z: A Rising Power in the Chinese Market and 7 Characteristics of their Digital Lifestyles*, ChoZan, 2019. https://chozan.co/blog/gen-z-the-rising-power-in-chinese-market/ #Read_more_related_posts retrieved on 01-06-2023.

[190] *The secrets to the 5 trillion CNY Chinese Gen Z market: Douyin and Guochao*, Daxue Consulting, 2022. https://daxueconsulting.com/gen-z-consumers-china/ retrieved on 18-06-2023.

[191] *LVMH-SMU Luxury Conference 2021: The Future Of Luxury In Asia*. XUE, Rane and GU, Xiaolei intervention.

[192] *Unleashing Creativity: Exploring Avatar Customization in the Metaverse*, Edverse. https://www.edverse.com/blog/exploring-avatar-customization-in-the-metaverse retrieved on 21-04-2023.

purchasing luxury goods at the age of 15, three to five years earlier than Millennials. [193] Moreover, Gen Z possesses stronger purchasing power and is more willing to invest in luxury products. Tmall Luxury Pavilion reported a 153% increase in Gen Z and Millennials' online purchase volume between 2019 and 2021. [194]

Gen Zers' eagerness for newness and uniqueness, boosted by the acceleration of digitalisation, and the shift from offline to online activities, have contributed to pave China's road to the Metaverse. Gen Z are increasingly demanding unique and immersive experiences to engage with brands, they want to be entertained in never-before seen ways and create closer ties with their favourite labels at the same time. According to Arnold Ma, founder of Qumin digital creative agency, "They are using their confidence and the focus on individual success to collectively change China's position on the global stage" and that Gen Z can point to where the future is headed, and elements of a Metaverse are already bubbling up in China. [195]

Motivated by their quest for experience and newness, [196] by their desire for self-expression and supported by their high disposable income and willingness to spend, both Chinese Millennials and Gen Z have begun to engage with the Metaverse in a number of ways, from socialising to purchasing. [197] This new fertile ground offers Western Luxury brands the chance to engage with customers in more meaningful ways and to strengthen their brand image by effectively

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[193] D'ARPIZIO, Claudia, et al.. "Renaissance in Uncertainty: Luxury Build on Its Rebound", *Bain-Altagamma Luxury Goods Worldwide Market Study*, Bain & Company, 2022.

[194] D'AGOSTINO, Cristina, *The number of consumers grew by 153% on Tmall Luxury Pavilion in 2021*, "Luxury Tribune", 2022. https://www.luxurytribune.com/en/the-number-of-consumers-grew-by-153-on-tmall-luxury-pavilion-in-2021 retrieved on 8-05-2023.

[195] ZHOU, May. *China's Gen Z moves metaverse to the fore*, China Daily, 2023. https://global.chinadaily.com.cn/a/202203/21/WS6237cf8ea310fd2b29e521af.html, retrieved on 13-05-2023.

[196] *LVMH-SMU Luxury Conference 2021: The Future Of Luxury In Asia.* XUE, Rane and GU, Xiaolei intervention.

[197] DUDARENOK, Ashley, et al, *Mega Report: China E-commerce, Marketing and Digital Space 2023*, "Alarice" and "Chozan", 2023.

communicating their values. For the luxury industry, which shows huge potential in China, the Metaverse is a growth opportunity to pursue. [198]

2.3 The Chinese luxury industry and the Metaverse

The luxury industry in China is a dynamic and evolving landscape, characterised by a growing customer base, digital innovation and a blend of traditional luxury and Chinese cultural elements. The Chinese luxury market is poised to be the largest one by 2030, thus it holds a strong influence on the global luxury industry, and it is a focal point for high-end brands worldwide. [199]

The luxury industry encompasses the production, distribution and marketing of goods and services associated with high-quality, exclusivity and craftsmanship. Luxury possesses seven essential characteristics. Above all is quality, referring to the long-lasting feature of luxury products, to the design and craftsmanship. Secondly, the scarcity of products adds qualitative rarity to the product; this is particularly true with the case of limited editions and capsule collections that brands more and more often launch to appeal to their customers. Third is delivering experiential rewards to customers, as luxury must be loaded with positive feelings and strong brand association to foster an emotional connection between the brand and the customer. Fourth, the brand signature, including the brand's iconic elements such as patterns, colours and design, enrich the whole luxury experience. Fifth characteristics encompasses controlled channels that enable the brand to express their universe of values, to convey emotions and to create direct links with customers, both online and offline. Sixth, personalised services allow the brand to better explain their product to customers, to reveal all the elements behind the premium price of luxury goods. The seventh characteristic is the price, which is not correlated to the mere functional

[198] *Luxury and Technology: The Beginning of a New Era*, "Bain & Company", 2022. https://www.bain.com/about/media-center/press-releases/2022/luxury-and-technology-the-beginning-of-a-new-era/ Retrieved on 30-05-2023

[199] D'ARPIZIO, Claudia, et al., "Renaissance in Uncertainty: Luxury Build on Its Rebound", *Bain-Altagamma Luxury Goods Worldwide Market Study*, Bain & Company, 2022.

performance of the good, but to the overall value of the brand, to its power and status, to the imagination and dreams it creates. [200]

Luxury also encompasses other essential values, those of creativity and innovation, quest for excellence, entrepreneurial spirit and commitment. [201] Innovation is quite relevant for the purpose of this thesis, and it is also a major driving force for luxury houses, because it is essential to remain relevant in the evolving market. According to Bain & Company, the luxury market is currently experiencing transformation across several dimensions. This includes shifts in consumer demographics, with a rising proportion of younger customers contributing significantly to global luxury spending. Geographically, the Asian market is expected to expand substantially by 2030, with China serving as the primary driver of this growth. Furthermore, consumer behaviour is changing, with a growing interest in experiences and products tied to immersive art installations and experiential events. Additionally, the way consumers shop is evolving, with online migration continuing to exhibit robust growth rates. [202] Thus, traditional luxury brands are currently faced with the challenge posed by younger generations of consumers who are shifting their spending habits from traditional luxury goods and services to invest in products and experiences that are more aligned with their personal values. "I believe innovation is deeply rooted into luxury and craftsmanship because every craftsman always thinks about ways to improve an object that's being produced. The key point of luxury and innovation is really answering the question of how can we do things differently to offer a memorable experience to our clients and make our products better.", explained Agnés Vissoud, Digital Innovation Director at Louis Vuitton, in an interview for LVMH. "Businesses are trying to dive into the new world of digitalisation, but it requires a real desire to be educated in this field and if it's

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[200] All the information concerning luxury's characteristics and values are obtained from the materials provided by the *Inside LVMH Certificate: May 2023 Promotion* of LVMH.
[201] *Inside LVMH Certificate: May 2023 Promotion* of LVMH
[202] D'ARPIZIO, Claudia, et al.. "Renaissance in Uncertainty: Luxury Build on Its Rebound", *Bain-Altagamma Luxury Goods Worldwide Market Study*, Bain & Company, 2022.

not in your skill set, it can be quite a complicated and slow process. Pouring resources into this transition is crucial." affirmed Laura-Jane Silverman, Head of LSE Generate at London School of Economics. Today, luxury brands are particularly focusing on building long-lasting relationships with customers based on trust and loyalty, thus it is essential to understand the customer base and develop products and services to cater to their desires. Customers are placing higher expectations on services and experiences; hence the digital transformation is becoming increasingly important for luxury brands. As reported in the report of Bain & Company, by 2030 the luxury industry is expected to expand beyond its traditional business models and expand into new activities empowered by new technologies, such as the Metaverse and virtual experiences, which will result in additional €60 billion to €120 billion of revenues in luxury global sales. [203]

The luxury market started to develop in China from 1994 and in the past 30 years luxury brands from all sectors, jewellery and watches, fashion, accessories and cosmetics to mention the most profitable ones, have expanded their businesses in China's department stores and shopping malls. [204] Global luxury brands have recognized the immense potential of the Chinese market and have been actively expanding their presence in the country. E-commerce has played a significant role in the growth of the luxury industry in China. The country has a thriving online retail ecosystem, with platforms like Tmall and JD.com dominating the market. Luxury brands have embraced digitalization and established their online presence to cater to the evolving preferences of Chinese consumers. Chinese consumers' preference for luxury goods is not limited to major cities like Beijing and Shanghai. Second-tier cities are emerging as significant growth opportunities, with an increasing number of affluent consumers seeking luxury

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[203] *Luxury and Technology: The Beginning of a New Era*, "Bain & Company", 2022. https://www.bain.com/about/media-center/press-releases/2022/luxury-and-technology-the-beginning-of-a-new-era/ Retrieved on 30-05-2023.
[204] *Inside LVMH Certificate: May 2023 Promotion* of LVMH, Interview with Andrew Wu.

products and experiences. [205] China has now become one of the largest and fastest-growing luxury markets globally. Over the past decade, the luxury market in China grew by 5% every year, exceeding 110 billion US dollars of revenues in 2018. [206] During the 2010s, Chinese consumers accounted for 60% of total industry growth with purchases taking place mainly outside China. Due Covid-19 restrictions, however, Chinese customers' spending dropped down between 10%-15% in 2021, but the ease of restrictions is expected to boost the demand for high-end clothing and accessories by 23% in 2023. In the long run, Chinese consumers are expected to account for 60% of total spending in personal luxury goods by 2030, believed Morgan Stanley. [207] "China should become the industry's growth engine from this year on, and we expect brands at the top of the luxury-goods pyramid to benefit the most," affirms equity analyst Edouard Aubin. Bain & Company forecasted that the Chinese luxury market will become the largest luxury market globally by 2030, surpassing the United States and Europe with 25%-27% of global purchases, thus it will also be the most profitable one. [208]

The wealth generated by the profound economic transformation that changed China is empowering Chinese shoppers from the middle class, who are expected to regain the purchasing power lost during the global pandemic by 2030 and return to be the dominant nationality with 38%-40% of global purchases. [209] One of the key drivers of luxury consumption in China is the younger generation of affluent consumers of millennials and Generation Z, who are growing into the

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[205] *China Luxury Market Guide*, "Marketing to China", 2022. https://marketingtochina.com/china-luxury-market-guide/ Retrieved on 28-05-2023.
[206] *How the Chinese luxury market poised to become the largest in the world*, Daxue Consulting, 2020. https://daxueconsulting.com/chinese-luxury-market/ Retrieved 30/05/2023.
[207] *Chinese Buyers to Boost Luxury Goods Sector*, Morgan Stanley, 2023. https://www.morganstanley.com/ideas/china-luxury-sector Retrieved on 30-05-2023.
[208] D'ARPIZIO, Claudia, et al., *Renaissance in Uncertainty*: *Luxury Build on Its Rebound*, Bain & Company, 2023. https://www.bain.com/insights/renaissance-in-uncertainty-luxury-builds-on-its-rebound/retrieved on 28-05-2023.
[209] *Ibidem.*

largest luxury spending segment in China and globally. Considering their significant market share, these consumers hold great influence as trendsetters and change agents. [210] Therefore, it is crucial for brands to address their interests. These customers are increasingly seeking understated luxury that aligns with their personal style and taste. This has led to a rise in demand for niche luxury brands that offer exclusivity, craftsmanship, and unique storytelling, as well as demand for innovation, personalization, and exclusivity. To cater to their preferences, luxury brands have adapted their strategies by incorporating Chinese elements into their designs, collaborating with local celebrities and influencers, and implementing personalised marketing campaigns. Localization has become crucial in understanding the cultural nuances and preferences of Chinese consumers. [211] Furthermore, luxury brands are reshaping their distribution channels to reach out to a wider customer base. While traditional brick-and-mortar stores remain important in the luxury industry, they are evolving in China and it is urging luxury brands to focus on creating immersive and experiential stores, virtual retail centres and shops. [212] Chinese consumers are in fact demanding brands to adopt more of the new emerging technologies and to develop an offering that prioritises experiences and customer relationships. These technologies include artificial intelligence, XR, 3D images, blockchain, NFTs and the Metaverse, among others. The Metaverse, particularly, is of enormous interest for luxury brands because it enables them to establish direct links with customers and communities of customers. Particularly, the Metaverse holds immense interest for luxury brands as it allows for direct connections with customers and customer communities[213]. Through the Metaverse, luxury brands can create additional value for customers by blending

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[210] LVMH-SMU *Luxury Conference 2021: The Future Of Luxury In Asia*. XUE, Rane and GU, Xiaolei intervention.

[211] *China Luxury Market Guide*, "Marketing to China", 2022. https://marketingtochina.com/china-luxury-market-guide/ Retrieved on 28-05-2023.

[212] *Inside LVMH Certificate: May 2023 Promotion* of LVMH.

[213] *Leveraging the Web3 Ecosystem for Luxury Brands*, Inside LVMH, 2022. https://www.insidelvmh.com/blog/47/post/view/186 retrieved 28/05/2023.

physical and virtual realities and offering new, immersive, and interactive ways to experience their products. China houses some of the biggest tech giants globally, has the most digitally perceptive consumers who are accustomed to ever-emerging technologies, and has a luxury market with the highest potential of growth, thus it constitutes the perfect testing ground for brands to explore the metaverse and test new technologies and business models. [214]

The strong demand for new technologies adoption coming from China and the Covid-19 restrictions have accelerated the deployment of emerging technologies to enrich the customer experience, to widen the omni-channel strategy and provide customers with the possibility of immersing themselves in the brand's universe. [215] From Virtual Idols to NFTs, luxury brands are recognizing the value of leveraging Metaverse technology to provide what is at the essence of luxury; exclusivity, traceability and premiumness. [216]

2.4 What the Metaverse offers to luxury brands

In China, the luxury fashion sector in the Metaverse is a new and emerging area that is attracting the attention of many luxury fashion brands. With the growth of Metaverse related technology, such as extended reality and metahumans, brands are exploring the potential of the Metaverse as a new channel for engagement and sales. Carol Zhou, Senior VP, China Business Innovation & Investments at Shiseido, holds that "brands have the opportunity to build another multi-dimensional customer journey in the Metaverse, and potentially uncover consumer behaviours that are not observed in real life. They can engage with consumers on another level, which can complement their overall communication

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[214] *Leveraging the Web3 Ecosystem for Luxury Brands*, Inside LVMH, 2022. https://www.insidelvmh.com/blog/47/post/view/186 retrieved 28/05/2023.
[215] *Luxury and Technology: The Beginning of a New Era*, "Bain & Company", 2022. https://www.bain.com/about/media-center/press-releases/2022/luxury-and-technology-the-beginning-of-a-new-era/ Retrieved on 30-05-2023.
[216] GU, Aslada, *Metaverse, NFTs and Virtual Idols in China – What Luxury Brands Should Know*, "The Luxury Conversation, 2022. https://luxuryconversation.com/what-luxury-brands-need-to-know-about-the-metaverse-nfts-and-virtual-idols-in-china/. Retrieved on 23-05-2023.

strategy and business objectives." [217] According to a Bain & Company research, the new types of activities the Metaverse enables will result in additional 60 billion Euros to those 160 billion Euros of the luxury industry sales.[218]

2.4.1 Extended Reality (XR) Technology

XR technology, which stands for Extended Reality technology, represents the primary way users can access immersive experiences and the virtual world. China is the largest market for XR in terms of growth rate: the International Data Corp reported that the XR market's CAGR [219] is estimated to reach 43.8% between 2023 and 2026.[220] There are actually three types of XR hardware to access the Metaverse: VR headset, AR devices. VR (虚拟现实 *xūnǐ xiànshí*) headsets use a combination of displays, lenses, input devices, and computing power to create an immersive virtual environment that feels like the real world, disconnecting the wearer from the physical world by blocking both sound and visuals. [221] VR headsets work with a combination of display, lenses, input devices, sensors and computing power. The display creates the virtual environment, while the lenses magnify the images being streamed. Input devices enable the wearer to move freely in the virtual environment and interact with digital objects, while sensors create the illusion of actually being in the virtual world. However, accessing this immersive experience requires a powerful computer or gaming console to render

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[217] NORDEY, Patrice, *Into the Chinaverse: How the Meta wave is hitting China*, Fabernovel.

[218] *Luxury and Technology: The Beginning of a New Era*, "Bain & Company", 2022. https://www.bain.com/about/media-center/press-releases/2022/luxury-and-technology-the-beginning-of-a-new-era/ Retrieved on 30-05-2023.

[219] CAGR: The compound annual growth rate (CAGR) is the annualized average rate of revenue growth between two given years, assuming growth takes place at an exponentially compounded rate (Gartner Glossary).

[220] MA, Si, *Growth a big reality for AR, VR domestic market*, "ChinaDaily", 2023. https://global.chinadaily.com.cn/a/202301/11/WS63bdeee6a31057c47eba8d4d.html retrieved on 19-06-2023.

[221] XIANG, Nina, *Parallel Metaverses, How the US, China and the rest of the world are shaping different virtual worlds*, Independently published, 2022.

the environment. [222] Bytedance is leading the VR market in China due to the acquisition of the VR headset manufacturer Pico in 2021. [223] AR (增强现实 *zēngqiáng xiànshí*) devices, on the other hand, allow users to view another version of the physical world that is augmented by computer-generated inputs that overlay the real world. [224] AR glasses work through a combination of cameras, sensors, displays, processing power and software that detect and display digital content in real-time. [225] AR oculus are equipped with cameras to capture the wearer's real surroundings, and the sensors track the user's movements to adjust the digital content screamed on the display accordingly. [226] AR devices, as well as VR glasses, require significant processing power to render the digital information and high-technological software to overlay the content onto the real environment. Alibaba is leading the Chinese market of AR oculus. The company has made significant investments in the American startup Magic Leap and is also reported to have invested in a local AR glass maker. Alibaba interest in the XR devices indicates that the e-commerce giant is determined to bring extended reality experience to its business and create immersive shopping experiences. [227]

XR devices are extremely popular in China, and it is due to two reasons. In the first place, Chinese people are early adopters of emerging technologies, even before they are fully developed and improved, and VR/AR oculus are no exception. According to a Statista report, the market revenues is expected to reach 6.61 billion US dollars in 2023 with a user penetration projected at 53.8% in

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[222] *What is Virtual Reality (VR) and how does it work?*, TeamViewer, https://www.teamviewer.com/en/info/what-is-virtual-reality-vr-and-how-does-it-work/. retrieved on 09-05-2023.
[223] XIANG, Nina, "Parallel Metaverses, How the US, China and the rest of the world are shaping different virtual worlds", *Independently published*, 2022.
[224] *Ibidem.*
[225] GILLIS, Alexander S., *Augmented reality (AR)*, "TechTarget", 2022. https://www.techtarget.com/whatis/definition/augmented-reality-AR retrieved on 09-05-2023.
[226] XIANG, Nina. *Parallel Metaverses, How the US, China and the rest of the world are shaping different virtual worlds*, Independently published, 2022.
[227] *Ibidem.*

the same year. [228] In the second place, the XR sector has benefited from the attention of the Central Government. The "*Action Plan for the Integration and Development of Virtual Reality and Industrial Applications*" released by the MIIT was analysed in the previous chapter, section 1.5, but it is worth mentioning again the positive impact this plan has had on the development of the XR industry and the Metaverse. With governmental support to local research and development centres and the plan to integrate XR with industrial application, companies were encouraged to venture in this emerging sector and a general enthusiasm for extender reality spread across China. [229]

The retail sector is believed to be one of the main beneficiaries of XR technology applications. VR/AR technology offers brands the opportunity to create unique virtual experiences where customers can find the convenience of online commerce while feeling the product as in physical storefronts. Virtual shopping powered by VR/AR also increases customer engagement and conversion rates. According to data revealed by Daxue Consulting, consumers spend more time strolling around virtual stores than physical shops, with an average session of 14 minutes compared to less than 2 minutes in the real world, while the conversion rate results to be increased by 70%. This incredible improvement in luxury brands' performance is due to the captivating experience that the virtual world unveils: the dynamism of the platform, with new product launches and events being streamed in real time, captures the consumer and gives them something new to discover every day. This experience allows new consumers to get to know the brand from a different perspective and to feel closer to it, while the brand has the chance to create its own virtual space and evoke a sense of exclusivity.

[228] "AR & VR – *China*", Statista (2023) https://www.statista.com/outlook/amo/ar-vr/china. retrieved on 10-05-2023.
[229] HINE, Emmie, DING, Jeffrey. "Action Plan for the Integration and Development of Virtual Reality and Industrial Applications, 2022-2026", (translation of original document "虚拟现实与行业应用融合发展行动计划" by Chinese Ministry of Industry and Information Technology), 2022, retrieved on 18-03-2023.

Empowering the shopping experience with XR technology to create a virtual environment rewards the brand with an increased ROI, which is 450% higher. [230]

Kivisense (弥知科技 *mízhī kējì*) is one of the Chinese major companies engaged in the WebAR try-on engines. The company is committed to bring the fitting experience that customers find in the brick-and-mortar stores to online activities and platforms to reduce the online sales return rate. To this end, Kivisense has developed a number of try-on engines and 3D rendering technologies for clothes, footwear and accessories, such as eyewear and bags. Kivisense technology works through mobile phones and the AR engine detects the human body feature and tracks the user's movements to make clothes move simultaneously as the person changes position, to provide a more seamless experience. The 3D rendering engine is optimised to represent even the most complex textures and details. [231] Kivisense AR clothing try-on feature can be applied to a variety of platforms, such as Wechat Mini-program, offline boutiques and Farfetch, to empower the brand image and expand its omni-channel strategy. Chinese young consumers are particularly interested in *phygital* shopping experience, that is an integration of both physical and virtual experiences which is interactive, immersive and in real-time.[232] [233]

Alibaba is among the first companies worldwide to have brought XR applications to e-commerce. In 2016 the company integrated Taobao with its VR application Buy+, and since then Alibaba has further invested in the research and development of XR technology through its affiliates. [234] Amid such a strong background in virtual and augmented realities, Alibaba was able to provide luxury brands with innovative ways to engage with customers on the niche platform of

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[230] *China's Metaverse and Its Retail Applications*, Daxue Consulting & AYO, 2022.

[231] *Kivisense Officially Launches Its AR Cloting Try-on*, "Kivisense", 2022. https://tryon.kivisense.com/blog/ar-clothing-try-on-launch/ Retrieved 8-05-2023.

[232] *Ibidem.*

[233] *China's Metaverse and Its Retail Applications*, Daxue Consulting & AYO, 2022.

[234] *Zhēn de láile! Táobǎo tuīchū VR gòuwù chǎnpǐn Buy+*, " 真的来了！淘宝推出*VR*购物产品*Buy*＋, (It's really here! Taobao launched the VR application for buying products Buy+) "Sina.com", 2016. http://tech.sina.com.cn/it/2016-04-01/doc-ifxqxcnr5157233.shtml retrieved on 09-05-2023.

Tmall Luxury Pavilion and to tap into the Metaverse latest trends. In occasion of the national festivity of 11.11 [235] in 2022, Alibaba's Damo Academy unveiled an XR-powered marketplace featuring over 70 luxury brands. Consumers were enabled to use their personalised avatar to walk along a busy street with stores on both sides. Whenever they saw something they particularly liked, they simply had to grab the item and place it in their virtual carts. The Metaverse Mall created by Alibaba for 11.11 was taken as an experimental ground by luxury brands. Supported by Alibaba's innovative technologies, luxury brands had the chance to test new retail strategies in the virtual world, to widen their offering and to learn what works better with Chinese consumers and to engage with Chinese Millennials and Gen Z consumers. 2022 11.11 Singles Day was highly innovative and creative and luxury brands had the opportunity to strengthen their brand image and generate awareness among consumers. [236]

2.4.2 Virtual idols

The Internet era has led to the rise of influencers, KOLs (Key-opinion leaders) and KOCs (Key-opinion consumers), who have played a determinant role in shaping consumer's behaviour; with the advent of the Metaverse and immersive technology, new influential figures are emerging. [237] Virtual idols (虚拟偶像 *xūnǐ ǒuxiàng*), the computer-generated counterpart to physical KOLs, are re-shaping the influencer market in China as their popularity among young consumers is

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[235] 11.11 is the Single's Day festivity in China and in the early 2000s it transformed into a commercial event, with consumers spending more and more on purchases. 11.11 is therefore an opportunity for brands to capitalise on, and Alibaba was the first platform to host sales and promotion for the occasion. As of today, 11.11 sales volume has surpassed that of Black Friday and Cyber Monday together, and therefore it is the most important event for foreign brands to raise awareness among Chinese consumers and boost their sales.

[236] TUDOR-ACKROYD, Alison, YU, Ivy, *Alibaba Rolls Out Deeper Immersive Luxury Shopping Experience In The Metaverse*, "Alizila", 2022.
https://www.alizila.com/alibaba-rolls-out-immersive-luxury-shopping-metaverse/ retrieved on 08-05-2023.

[237] RYDER, Bethanie, *Virtual Influencers Are The New Faces Of Luxury Campaigns In Asia*, "JingDaily精奢", 2022.
https://jingdaily.com/virtual-influencers-asia-campaigns-ayayi-imma-noah/ retrieved on 17-05-2023.

even bigger than that of physical KOLs. The virtual idol culture originated in Japan in the early 2000s with the rise of cyber celebrities on VOCALOID, such as Hatsune Miku, and it quickly expanded to China, where the market began to develop rapidly starting from 2011. Luo Tianyi (洛天依 *Luò tiān yī*), who made her debut in 2012, stands as the pioneer of a highly successful series of virtual singers that have earned users' trust, and officially opened a new market. [238] In 2018, China already counted more than 30 virtual idols that resembled characters from anime and manga who engaged with 390 million users. [239] Today, China stands as one of the pioneering countries with a well-established virtual idol industry. According to a Statista report, in 2022 the virtual influencer market was worth 12 billion Yuan (1.2 billion Euros) [240], and it is projected to reach 175 billion Yuan (17.5 billion Euros) by 2023, as forecasted by the service platform Qbit-AI.[241]

Virtual idols are digital characters powered by artificial intelligence and animated by advanced technology, who do not necessarily resemble the human body. As a matter of fact, there are two types of virtual human beings: the function-oriented, and the Intellectual Property (IP) oriented. Nicky Yu, co-founder of Ranmai Technology (燃麦科技 *Ránmài kējì*), in an interview with Dao Insight explained that function-oriented virtual humans are realised to perform various tasks on behalf of human beings. Function-oriented characters can carry out digital services, such as assisting users in their journey on

[238] "*Zhōngguó xūnǐ ǒuxiàng hángyè yán jiù bàogào*", 中国虚拟偶像行业研究报告 (*Report On The Virtual Idol Industry in China*), "iResearch", 2022. https://report.iresearch.cn/report_pdf.aspx?id=4071 retrieved on 12-05-2023.

[239] "*Ài qí yì: 2019 Xūnǐ ǒuxiàng guānchá bàogào*", 爱奇艺:*2019*虚拟偶像观察报告, "Sina.com", 2020. https://tech.sina.com.cn/roll/2020-03-06/doc-iimxyqvz8178817.shtml retrieved on 09-05-2023.

[240] Statista, 2023 https://www.statista.com/statistics/1310770/china-virtual-human-market-size/.

[241] *Qbit-AI "12 zhāng PPT kàn dǒng zhōngguó xūnǐ shùzì rén chǎnyè xiànzhuàng: Yìngyòng bùzhǐ yú xūnǐ ǒuxiàng,2030 nián shìchǎng dá 2700 yì | liàngzǐ wèi zhìkù (fù xiàzài),* Qbit-AI "12张PPT看懂中国虚拟数字人产业现状:应用不止于虚拟偶像, 2030年市场达2700亿｜量子位智库（附下载）, (12 PPTs to understand the status quo of China's virtual digital human industry: the application is not limited to virtual idols, and the market will reach 270 billion in 2030 | Qubit Think Tank (download attached) , 2021. https://www.qbitai.com/2021/09/28721.html. Retrieved on 28-04-2023.

Metaverse platforms. IP-oriented virtual humans, instead, comprehend anime-based characters (二次元 *èr cìyuán*) such as Luo Tianyi, and hyper-realistic virtual humans (超写实 *chāo xiěshí*), like AYAYI. They both are developed to create products and engage with consumers to promote the brand they collaborate with, but their design features are different. Anime-based virtual humans are characters, either two-dimensional or three-dimensional, that closely resemble fictional characters from manga and do not bear resemblance to real-life influencers. On the other hand, hyper-realistic virtual humans are specifically crafted to replicate human beings in real life, featuring three-dimensional body features and movements that grant them a lifelike appearance. In fact, their Chinese name directly translates to '*exceedingly realistic depiction*,' emphasising their realistic nature.[242] [243] For the purpose of this thesis, only IP-oriented virtual humans will be discussed.

The making process of a virtual human being varies from one model to another, explained Yu, but in general it involves three components: model creation, motion capture and real-time graphics. At Ranmai Technology, one of the leading companies in the virtual human industry, developers first outline the virtual human main character traits and personality, and secondly work on the virtual human's physical appearance based on pre-set personalities. Finally, the company collects feedback from users to check whether the virtual human's appearance and design matches the persona outlined. The whole production period can range from half a year to two years, depending on the quality of the virtual idol.[244] Another possible creation process involves the active participation

[242] NA, Qing, *Decoding China's virtual human industry – an interview with Nicky Yu from RM GROUP, creator of China's first Meta human AYAYI*, "Dao Insight", 2023. https://daoinsights.com/exclusives/decoding-chinas-virtual-human-industry-an-interview-with-nicky-yu-from-rm-group-creator-of-chinas-first-meta-human-ayayi/ retrieved on 09-05-2023.

[243] *Ài qí yì: 2019 Xūnǐ ǒuxiàng guānchá bàogào*, 爱奇艺：*2019虚拟偶像观察报告*, (*Iqiyi: 2019 report on Virtual Influencers*), "Sina.com", 2020. https://tech.sina.com.cn/roll/2020-03-06/doc-iimxyqvz8178817.shtml retrieved on 09-05-2023.

[244] NA, Qing, *Decoding China's virtual human industry – an interview with Nicky Yu from RM GROUP, creator of China's first Meta human AYAYI*, "Dao Insight", 2023. https://daoinsights.com/exclusives/decoding-chinas-virtual-human-industry-an-interview-with

of a community of users. This experimental approach was initially undertaken by Ranmain Technology in collaboration with Tmall, resulting in the creation of Noah (锘亚 *Nuò yà*).[245] The concept of a co-created virtual idol emerged as a response to the scandals surrounding real-life KOLs and the subsequent disillusionment of their fanbase, leading to a decline in followers and enthusiasm. Virtual idols, on the other hand, offer a more manageable and controversies-free alternative, capable of reigniting fans' excitement. Ranmai developers organised a community of users on Weibo where periodical surveys were conducted, and members expressed their preferences on what the virtual idol would be like in terms of skills, physical appearance, style and personality. For instance, users were asked whether Noah should have been a singer or a dancer.[246] More than 21 million users have participated in the survey and the project was viewed by more than 65 million users on Weibo.[247] According to Yu, the co-creation process helped fans establish a strong emotional attachment to the virtual idol, which contributed to increase loyalty among the fan base. Concerning the second and third steps, motion capture and real-time graphics, a model's face and body movements are shot with multiple cameras and from different angles and then all the data collected is transmitted to the system for rendering the digital character[248].

Virtual influencers are attracting an ever-increasing number of followers among China. A key factor in determining the shift of interest from real-life KOLs to virtual idols is the digitalisation trend. Gaming addiction that is common among

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h-nicky-yu-from-rm-group-creator-of-chinas-first-meta-human-ayayi/ retrieved on 09-05-2023.

[245] *Ibidem.*

[246] *Ibidem.*

[247] RYDER, Bethanie, *Virtual Influencers Are The New Faces Of Luxury Campaigns In Asia*, "JingDaily精奢", 2022. https://jingdaily.com/virtual-influencers-asia-campaigns-ayayi-imma-noah/ retrieved on 17-05-2023.

[248] *Metahumans in China: The next frontier of KOL marketing*, "Daxue Consulting", 2021. https://daxueconsulting.com/metahumans-in-china/ retrieved on 09-05-2023.

Chinese Millennials and Gen Z has paved the way for virtual influencers[249] and for a growing interest that these users pay to the virtual world. Emerging technologies such as 5G, Blockchain, AI and NFTs have played a relevant role in shaping new consumer's behaviour as well. In general, young Chinese consumers are prioritising virtual goods over physical goods. "From a consumer perspective, the growth of virtual influencers is an indication of shifting consumer behaviours. Gen Z is placing ever more value on the virtual world. It goes further than just the purchase of digital goods and is moving into the realm of virtual idols." said Charles Hambro, founder and CEO of Geeiq.[250]

Besides, virtual influencers have been reported to engage easily with consumers born in the 1990s and beyond, which accounts for 80.6%, according to a iResearch report[251]. The first virtual humans produced were those in 二次元, two dimensions, who incredibly resembled anime and manga characters towards whom Gen Z has showed great interest, thus feeling more comfortable engaging with them.[252] The same ease was felt by Gen Z also when interacting with hyper-realistic virtual humans. iiMedia Research has identified a few factors that determine Chinese young consumers' interest toward virtual humans. Among them, the aesthetic and voice of the virtual person have attracted a huge number of users (68.5%) and the positive and relatable image followed closely (45.7%). [253]

[249] RYDER, Bethanie, *Virtual Influencers Are The New Faces Of Luxury Campaigns In Asia*, "JingDaily精奢", 2022. https://jingdaily.com/virtual-influencers-asia-campaigns-ayayi-imma -noah/ retrieved on 17-05-2023.

[250] *Ibidem.*

[251] *Zhōngguó xūnǐ ǒuxiàng hángyè yán jiù bàogào*, 中国虚拟偶像行业研究报告 (*Report On The Virtual Idol Industry in China*), "iResearch", 2022. https://report.iresearch.cn/report_pdf .aspx?id=4071 retrieved on 12-05-2023.

[252] RYDER, Bethanie, *Virtual Influencers Are The New Faces Of Luxury Campaigns In Asia*, "JingDaily精奢", 2022. https://jingdaily.com/virtual-influencers-asia-campaigns-ayayi-imma -noah/ retrieved on 17-05-2023.

[253] THOMALA, Lai Lin, *Reasons for Chinese internet users to be interested in virtual humans as of January* 2022, "Statista" 2023, https://www.statista.com/statistics/1311650/china-reasons-to -like-virtual-humans/ retrieved on 11-05-2023.
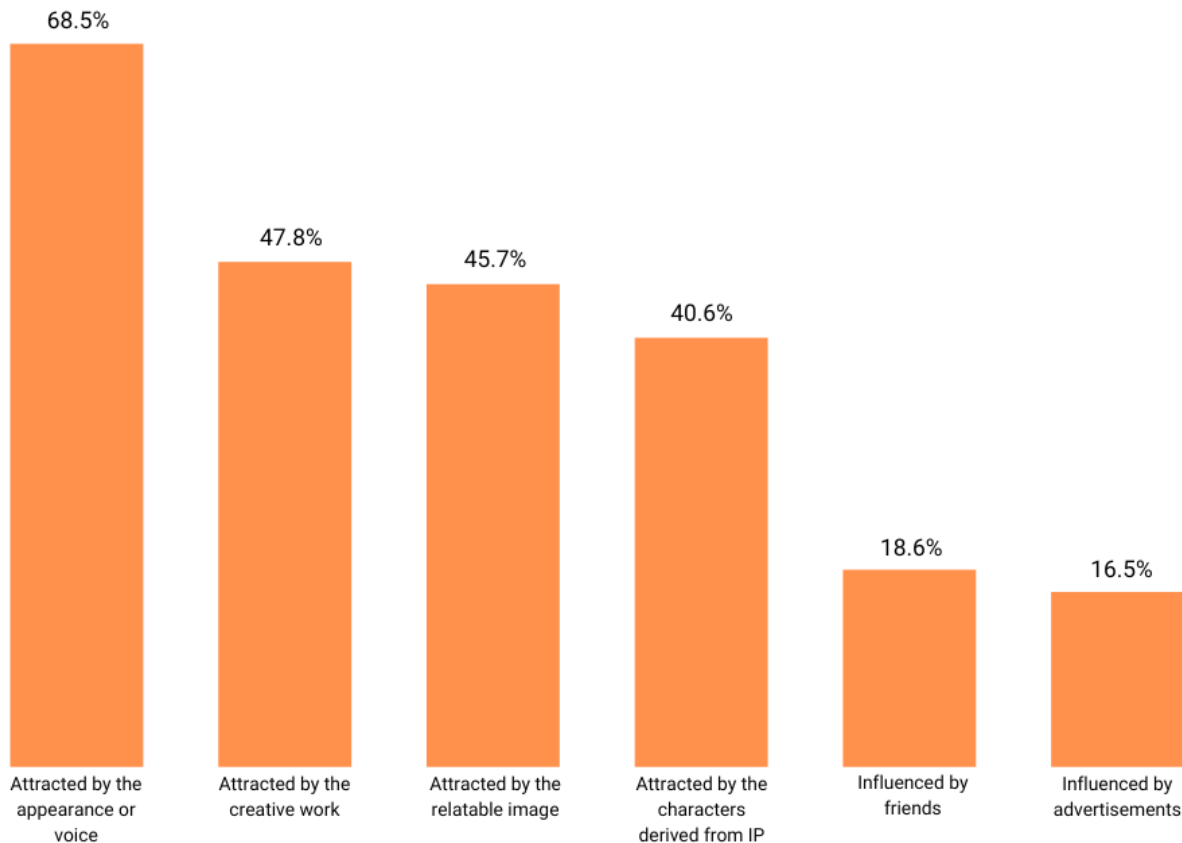
Image 7: Reasons for Chinese consumers to like virtual idols
Source: Statista

Data from HypeAuditor affirm that virtual influencers have registered three times more engagement than that registered by virtual humans.[254] These statistics show that virtual humans are a powerful tool to connect young consumers with the Metaverse, and that they are a marketing tool that brands cannot leave out of their business strategic plans. According to data from iiMedia research, the virtual KOL market value was attested at 12 billion US dollars, a value that is bound to grow in the next few years.[255]

From the brand perspective, virtual KOLs have more competitive advantages compared to real-life influencers. It is indeed that the emotional attachment

[254] *The Top Virtual Instagram Influencers in 2021*, "HypeAuditor", 2021. https://hypeauditor.com/blog/the-top-instagram-virtual-influencers-in-2021/, retrieved on 12-05-2023.

[255] iiMedia research (ID 1311650), 2022, retrieved in Statista report "*Building the Chinese Metaverse*", 2022.

created with physical KOLs will not be substituted, but virtual influencers provide the company with more opportunities for profit. In the first place, the brand is enabled to create and adjust the model according to the values and perception it wants to transmit to the audience. The brand has complete control over the virtual human and can decide the aesthetic of the person and the setting, thus shaping the brand image through the virtual person. Furthermore, virtual KOLs can create digital contents that help the brand to increase its exposure in the marketplace and to enhance the whole customer experience.[256] Another competitive advantage is represented by the scalability of the virtual influencers, who are not restricted by geographical limits and physical restrictions, which allows the brand to have full control over the virtual person. "Virtual influencers are highly scalable. They are available to work 24/7, they don't come with costly price tags like real influencers, and they can reach a wide audience," affirmed Charles Hambro.[257] In general, virtual KOLs are cost-effective. Brands have the chance to create their own virtual brand ambassador, shape them in accordance with the brand image and value and strengthen the relationship with the customer base.[258] Virtual influencers are mostly followed by Chinese consumers born from the 1990s on, 78.9% of whom have a monthly income higher than 5000 RMB.[259] The brand is therefore able to derive a long-term value from its virtual influencer and brand ambassador.

[256] NA, Qing, *Decoding China's virtual human industry – an interview with Nicky Yu from RM GROUP, creator of China's first Meta human AYAYI*, "Dao Insight", 2023. https://daoinsights.com/exclusives/decoding-chinas-virtual-human-industry-an-interview-with-nicky-yu-from-rm-group-creator-of-chinas-first-meta-human-ayayi/ retrieved on 09-05-2023.

[257] RYDER, Bethanie, *Virtual Influencers Are The New Faces Of Luxury Campaigns In Asia*, "JingDaily精奢", 2022. https://jingdaily.com/virtual-influencers-asia-campaigns-ayayi-imma-noah/ retrieved on 17-05-2023.

[258] *Ibidem.*

[259] *Zhōngguó xūnǐ ǒuxiàng hángyè yán jiù bàogào*, 中国虚拟偶像行业研究报告 (*Report On The Virtual Idol Industry in China*), "iResearch", 2022. https://report.iresearch.cn/report_pdf.aspx?id=4071 retrieved on 12-05-2023.

The virtual influencer market is expected to reach 333.4 billion RMB in 2023, and many virtual KOLs are being presented every year. Among the most renowned virtual idols, there are AYAYI and Luo Tianyi.[260]

AYAYI is an IP-oriented, hyper-realistic virtual human created by Ranmai Technology in only half a year of work.[261] She made her debut on Chinese social media in May 2021 posting photos of her with celebrities and of her visiting exhibitions in Shanghai. Chinese users were fascinated by AYAYI aesthetic and began posting make-up tutorials and inspired artworks, while people began questioning whether she was a real person or not. It was only in June 2021, a month after her debut, that AYAYI was confirmed to be a meta-human.[262] Nevertheless, the success of AYAYI was unprecedented and she did not only entice consumers, but also luxury brands. The first brand to have collaborated with AYAYI is the French beauty brand Guerlain.

For the summer event *Beeloved Garden* organised in Shanghai in June 2021, the beauty brand invited Chinese KOLs to participate in the event, including AYAYI. A few days later, AYAYI's photos obtained more engagements than those of real-life influencers, who organised shooting to replicate AYAYI's poses in the same location.[263] Since then, many other top-tier luxury brands have collaborated with the virtual KOL, including Prada, Dior, Tiffany & Co, Louis Vuitton and Ferragamo.

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[260] NA, Qing, *Decoding China's virtual human industry – an interview with Nicky Yu from RM GROUP, creator of China's first Meta human AYAYI*, "Dao Insight", 2023. https://daoinsights.com/exclusives/decoding-chinas-virtual-human-industry-an-interview-with-nicky-yu-from-rm-group-creator-of-chinas-first-meta-human-ayayi/ retrieved on 09-05-2023.

[261] *Ibidem.*

[262] AYAYI: *The first metahuman in China has already made an "offline appearance" at Guerlain's event*, "Daxue Consulting", 2021. https://daxueconsulting.com/ayayi-first-metahuman-china-guerlain-event/ retrieved on 09-05-2023.

[263] *Ibidem.*

Image 8: AYAYI for Guerlain at the Shanghai event in 2021
Source: Weibo@AYAYI

AYAYI has also joined Alibaba in 2021 as digital manager at Tmall Super Brand, where she plays multiple tasks: NFT artist, fashion brand manager, digital curator, brand ambassador and many others.[264] For the Mid-Autumn Festival of 2021, the virtual KOL released NFT moon cakes on Tmall Super Brand Day.

Luo Tianyi is an IP-oriented, two-dimensional virtual human inspired by anime characters. Luo Tianyi is a virtual singer that was featured in the voice synthesiser software of Vocaloid, an online product that allows users to get a virtual singer to perform their lyrics and melodies. The design of Luo Tianyi was then jointly developed by Shanghai Henian company and Tokyo Bplast company. It was early in 2012 that Luo Tianyi made her debut as a vsinger, which makes her

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[264] NAN, Lisa. *Introducing China's Top Virtual Idols: Ayayi and Luo Tianyi*, "JingDaily 精奢", 2021. https://jingdaily.com/virtual-idols-china-celebrities-crackdown-ayayi-luo-tianyi/ retrieved on 20-06-2023.

the first Chinese virtual idol.[265] Since 2012, Luo Tianyi's success has not stopped and today she is followed by more than 5 million users on Weibo where she shares her performances. In 2019, the vsinger held her first concert with a physical pianist and the venue where the concert was held was full of enthusiastic followers.[266]

The most successful moment in Luo Tianyi's career, however, was the invitation to the Spring Festival Gala of 2021, where only Chinese top performers are invited. The invitation was a clear sign that showed the growing importance of virtual idols in China.[267]

2.4.3 NFTs and digital collectibles

NFTs (non-fungible tokens), or digital collectibles, (数字藏品 *shùzì cángpǐn*) are digital assets, which differ from Bitcoin because of their intrinsic nature. NFTs possess the main characteristics of uniqueness, non-interchangeability and non-tampering[268] and rely on blockchain technology. In simple terms, while Bitcoins are all equals, NFTs may represent different underlying assets and have a different value, hence a different price. Through blockchain technology[269], NFTs are granted an ID code, which ensures the ownership of the digital asset and its

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[265] KOETSE, Manya, *Luo Tianyi and the Booming Virtual Idol Market in China*, "What's on Weibo", 2021. https://www.whatsonweibo.com/luo-tianyi-and-the-booming-virtual-idol-market-in-china/ retrieved on 21-05-2023.

[266] NAN, Lisa. *Introducing China's Top Virtual Idols: Ayayi and Luo Tianyi*, "JingDaily 精奢", 2021. https://jingdaily.com/virtual-idols-china-celebrities-crackdown-ayayi-luo-tianyi/ retrieved on 20-06-2023.

[267] KOETSE, Manya, *Luo Tianyi and the Booming Virtual Idol Market in China*, "What's on Weibo", 2021. https://www.whatsonweibo.com/luo-tianyi-and-the-booming-virtual-idol-market-in-china/ retrieved on 21-05-2023.

[268] TONG, Antonia, "Non-fungible Token, Market Development, Trading Models, and Impact in China", Asian Business Review, 2022, 12.1: 7-16.

[269] Blockchain is a shared, immutable ledger that facilitates the process of recording transactions and tracking assets in a business network. An *asset* can be tangible (a house, car, cash, land) or intangible (intellectual property, patents, copyrights, branding). Virtually anything of value can be tracked and traded on a blockchain network, reducing risk and cutting costs for all involved (Source: IBM).

traceability, thus allowing for the copyright of the asset to be certified.[270] An NFTs is *one-of-a-kind*, meaning that it is a unique piece of data. In China, NFTs have been dubbed as Decentralised Digital Certificates (DDC), or digital collectibles, following Government's administrative restrictions on NFTs and cryptocurrency market to prevent the speculation of the RMB currency and to avoid the surge of secondary market for money laundry.[271] Digital collectibles and NFTs come in the form of a work of art, of music, or a piece of clothing, and today they constitute one of the biggest markets related to the Metaverse and its potential is growing steadily. According to a Statista report, in 2022 the revenues generated in the NFT segment will reach 3,2 thousand US dollars, and the sector is expected to show an annual growth rate of 18.46%, thus reaching the total amount of 11,8 thousand US dollars.[272] According to a consumer survey conducted by Statista in July 2022 of 622 Chinese respondents, almost one third of the people interviewed are interested in digital collectibles because of their specific intellectual properties.[273]

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[270] *China's NFT market in 2022: The most comprehensive analysis guide*, "Enlybee", 2022. https://www.enlybee.com/the-most-comprehensive-report-to-chinas-nft-market/ retrieved on 20-05-2023.

[271] LIU, *China Says No To Speculative All-Virtual Metaverse*, "JingDaily精奢", 2022, https://jingdaily.com/china-metaverse-real-economy-industrial-power/, retrieved on 14-04-2022.

[272] *NFT - China*, "Statista", 2023. https://www.statista.com/outlook/dmo/fintech/ digital-assets/nft/china retrieved on 22-05-2023.

[273] THOMALA, Lai Lin, *Opinions on digital collectibles among respondents in China as of July 2022*, "Statista", 2022. https://www.statista.com/statistics/1327877/china-consumer-opinions-on-digital-collectibles/ retrieved on 22-03-2023.
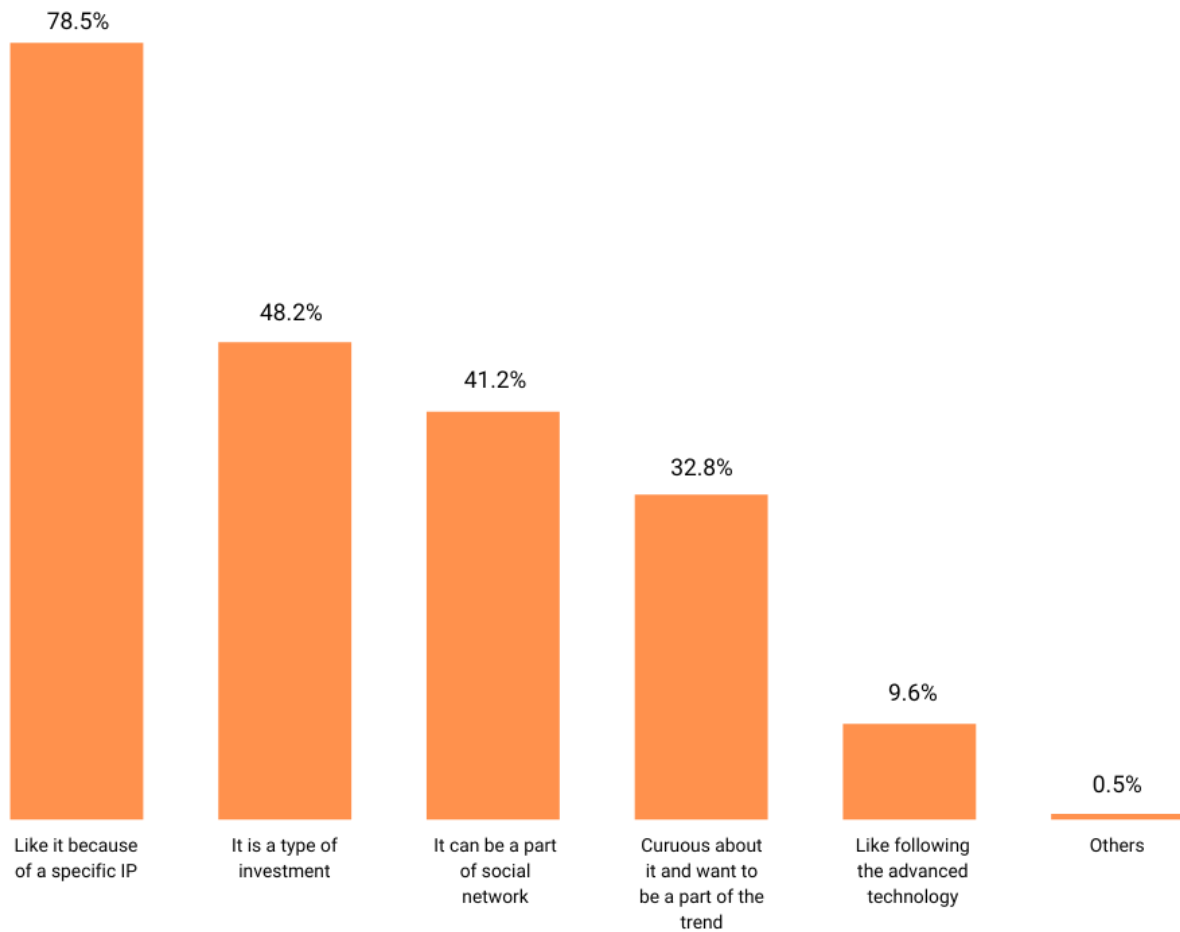
Image 9: Opinions on digital collectibles among respondents in China as of July 2022
Source: Statista

Concurrently with the rise of the Metaverse enthusiasm, the digital collectibles market began to show its potential in China in 2021, and while the excitement and the price bubble for digital collectibles may have already reached the peak, the most interesting and enduring businesses have only begun their journey[274] and Chinese digital collectibles platforms continue to spring up. Research in this field is still incomplete, however Chinese digital collectibles platforms can be divided into three tiers according to their quality. The first-tier counts eight platforms that are linked to listed companies, including JingTan, and Lingxi. Second-tier platforms are six and target the digital collections market. Third-tier platforms are circa twenty and are characterised by lower issuance quality and

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[274] *Luxury and Technology: The Beginning of a New Era*, "Bain & Company", 2022. https://www.bain.com/about/media-center/press-releases/2022/luxury-and-technology-the-beginning-of-a-new-era/ Retrieved on 30-05-2023.

quantity, less network flow and lower level of background technology.[275] Such trading platforms have developed unique distribution patterns to attract different segments of consumers, which can be classified into three models. The collection mode has low issuance and higher prices as main characteristics. These platforms allow customers to purchase collectibles with strong IP traffic and to collect them, such as Huanhe.[276] However, collection mode platforms are not open to secondary markets, thus customers cannot resell their collectibles.[277] The second pattern is the transfer model, whose main features are high issuance and lower prices per unit. Such platforms can benefit from a strong network flow and engagement with the general public. This model is named "transfer" because platforms adopting it allow for the transfer of items, with some restrictions: the digital collectible can be transferred by the owner after 180 days of holding it, and the second transfer can only occur after two years of holding the item. Such limitations are essential to maintain the speculation risk under control.[278] Third and last distribution mode is through secondary markets and, similarly to the collection mode, it is characterised by higher prices and low issuance. However, due to governmental restrictions, there are very few platforms that allow for secondary trading and the majority of transactions are carried out through traditional non-cryptocurrencies methods.[279]

JingTan, Huanhe and TheOne.Art are among the most renowned NFT marketplaces.[280] Developed by the Alibaba-owned Ant Group, JingTan (鲸探,

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[275] HE, Dandan, et al., The Development of Digital Collection Platform under Responsible Innovation Framework: A Study on China's Non-Fungible Token (NFT) Industry. *Journal of Open Innovation: Technology, Market, and Complexity*, 2022, 8(4), 203.

[276] *The Top 5 China NFT Marketplaces in* 2022, "Enlybee", 2022. https://www.enlybee.com/the-top-5-nft-marketplaces-in-china/ retrieved on 04-05-2023.

[277] HE, Dandan, et al., The Development of Digital Collection Platform under Responsible Innovation Framework: A Study on China's Non-Fungible Token (NFT) Industry. *Journal of Open Innovation: Technology, Market, and Complexity*, 2022, 8(4), 203.

[278] *China's NFT market in* 2022: *The most comprehensive analysis guide*, "Enlybee", 2022. https://www.enlybee.com/the-most-comprehensive-report-to-chinas-nft-market/ retrieved on 20-05-2023.

[279] *Ibidem.*

[280] *The Top 5 China NFT Marketplaces in* 2022, "Enlybee", 2022. https://www.enlybee.com/the-top-5-nft-marketplaces-in-china/ retrieved on 04-05-2023.

jīngtàn) offers to its 26 million users thousands of digital collectibles, including work of arts, music or artefacts from museums. The platform is not completely decentralised and works with some government offices.[281]

Huanhe (幻核, *huànhé*) belongs to Tencent and was launched in 2021 together with their first series of digital art collection, based on the talk show "13 Invitations". The immediate success of Huanhe did not rest, and the platform continues to generate enthusiasm through collaborations with artists and renowned brands, whose collectibles are prices above the market average. Huanhe, similarly to JingTan, operates close to the Government and uses the authorised Alliance Blockchain as underlying technology.[282]

TheOne.Art (唯一藝術, *wéiyī yìshù*) is among the very few platforms in China to allow for NFT secondary and consumer market. The platform launched in 2021 and in August of the same year hosted the world's first digital art creation competition, which attracted users and creators from around the world to buy and sell digital collectibles. TheOne.Art also released some self-developed collectible series, such as the Dunhuang series.[283]

Currently, digital collectibles are primarily used for the digital artwork market in China and luxury brands have taken them as an opportunity to engage with customers in a more meaningful way. Luxury brands are entering the NFT market as part of their digitalisation strategy and ensure that their virtual experience is superior and unique. Moreover, NFTs preserve the notion of exclusivity and scarcity that luxury brands have capitalised on. The NFT market in China is rather sophisticated and mature, hence for Western brands collaborations represent a safe entry mode to mitigate the risk of entering a new,

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[281] *The Top 5 China NFT Marketplaces in* 2022, "Enlybee", 2022.
https://www.enlybee.com/the-top-5-nft-marketplaces-in-china/ retrieved on 04-05-2023.
[282] *Ibidem.*
[283] *Ibidem.*

unknown market[284]. Most Chinese tech giants have developed their NFT platforms and are under their strict control to comply with Governmental regulations. Xiaohongshu is among the major front runners in NFT platforms, especially concerning fashion.

Xiaohongshu debuted with its STEP INTO R-SPACE platform for NFTs. On R-SPACE both designer brands, Chinese independent designers and consumers can create their digital work and trade it with other creators and consumers or send them as a gift.[285] Each piece has a unique identification code based on the Zhixin Chain and it is digital, unique, scarce and public. Each collectible is an original digital work that can be displayed within Xiaohongshu and most of them come with a physical version that can be purchased directly on the platform. This way, users can show-off their clothes and create content to post on their accounts. To this end, R-SPACE was also featured with 3D virtual experiences and customisable photo rendering simulation technologies to enable users to try on digital clothes. [286]

R-SPACE is now a creative hub for digital artists, fashion designers, virtual influencers and brands. R-SPACE holds enormous potential for the fashion: according to Fabernovel's observers[287], fashion will increasingly be more expressive, artistic and social and it is likely to evolve together with the Metaverse. NFTs offer unprecedented opportunities for brands to build their communities of loyal customers in the virtual world.

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[284] *How luxury brands can leverage the metaverse and NFTs to win over China*, "Daxue Consulting", 2022. https://daxueconsulting.com/luxury-brands-metaverse-and-nfts/ retrieved on 20-05-2023.

[285] NORDEY, *Into the Chinaverse: How the Meta wave is hitting China*, Fabernovel.

[286] BI, *How Xiaohongshu Rides The Digital Fashion Wave*, "JingDaily精奢", 2022. https://jingdaily.com/xiaohongshu-digital-fashion-nft/ Retrieved on 30-07-2023.

[287] *Step into R-SPACE: Build your Chinaverse on Xiaohongshu*, Fabernovel. https://asia.fabernovel.com/2022/08/09/step-into-r-space-build-your-chinaverse-on-xiaohongshu/ retrieved on 4-06-2023.
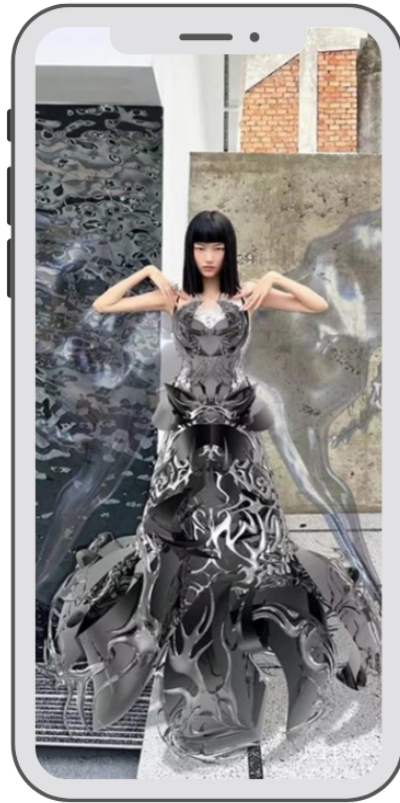
Image 10: Xiaohongshu's R-SPACE virtual try-on technology
Source. JingDaily精奢

2.4.4 Virtual events

Virtual events in the Metaverse refer to gatherings, conferences, exhibitions, performances, and other types of events that take place entirely within a virtual reality setting. The Covid pandemic has sensibly impacted the offline performance industry, causing circa 20,000 concerts to be cancelled or postponed, causing 2 billion RMB of losses to the Chinese economy. Such a crisis has pushed the performance sector to seek new strategies for reaching their public, and the Metaverse represented the most viable solution. Metaverse virtual events provide an easier way of interacting with people, not just for the entertainment sector: fashion shows, exhibitions, business meetings and fairs benefited from emerging technologies to reach a wider public.[288]

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[288] *China's Metaverse and Its Retail Applications*, Daxue Consulting & AYO, 2022.

Metaverse virtual events hold enormous potential and offer several advantages over traditional events in terms of participant engagement and accessibility. In the first place, Metaverse event venues are completely virtual, hence have no limitations on the number of potential participants and can host more participants than traditional events. Secondly, virtual events eliminate the need for physical travel, and provide opportunities for global participation, thus reducing logistical costs. Participants can in fact attend from anywhere in the world, creating a more inclusive and accessible experience. This advantage was of vital importance for China, whose market was damaged by Covid restrictions and continuous lockdowns in major cities, and still is an advantage when it comes to hosting global shows and showrooms.[289] Additionally, virtual events can offer unique and immersive experiences through interactive environments, 3D visualisations, and spatial audio. Organisers can leverage virtual reality technologies to design engaging environments, simulate physical spaces, and facilitate meaningful interactions between participants. As a matter of fact, virtual events show an increased customer engagement rate. Nevertheless, Metaverse events have several downsides in terms of technological requirements. Virtual events rely on key underlying technologies including 5G networks and cloud engines, which lowers entry barriers and maximises the number of participants. Cloud computing provides a reliable wireless connectivity for XR devices and cloud rendering constructs the Metaverse environment and sets it for events. However, the costs that are initially required for the necessary software and hardware may be discouraging. Also, the necessary technology to allow for virtual events goes beyond the 5G network. In order to allow for immersive experiences, more powerful high speed and wide coverage networks are required, together with better resolution and rendering processing power.[290] Finally, the customer demand for this type of events is rather weak, because the live experience cannot be recreated in virtual environments in its totality, but the success and the enthusiasm generated by

[289] *China's Metaverse and Its Retail Applications*, Daxue Consulting & AYO, 2022.
[290] *Ibidem.*

other live events in the Metaverse could lead to a renewed interest in virtual Metaverse events and consequently to lower initial costs.[291]

Despite these setbacks, a Statista report about Metaverse live events in China has reported that the revenue in the Metaverse entertainment segment is expected to reach 29.8 million Euros in 2023 and to show a CAGR of 9.28%, thus resulting in a market volume of 55.5 million Euros by 2030 [292].

Virtual events are a powerful tool to include in brands' digitalisation strategy: they are a novelty in the entertainment scenario and customers, who are increasingly demanding immersive and interactive experiences, are curious about them and willing to experience them. Luxury brands and retailers could leverage on these emerging technologies to organise virtual fashion shows both in real venues and in Metaverse virtual runways. Among the most important companies engaged in this sector, is Activation Group. Based in Mainland China, Activation Group offers experiential marketing, digital and communication and IP licensing services to luxury brands and deploys all technologies and marketing capabilities on its asset to develop metaverse marketing strategies. It includes the organisations of virtual events, such as the closing show of Shanghai World Design Capital Conference (WDCC) Metaverse session of 2022. Chinese luxury designer Shanghai Tang (滩海上, *Tān hǎishàng*) partnered with Activation Group to present a virtual fashion show whose theme is 虚实共生海上花开 (*Xūshí gòngshēng hǎishàng huā kāi*, The Blossoming Flower in Shanghai in the Symbiosis of Real and Virtual), a virtual venue with representations of mountains, rivers, lakes and seas where human and virtual models were twinned together and synchronised for a live show.[293]

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[291] THOMALA, Lai Lin, *Building the Chinese Metaverse, A Statista dossierplus on the virtual ambition and challenges behind the Great Firewall*, Statista, 2022

[292] *Metaverse Live Entertainment – China*, Statista, 2022. https://es.statista.com/outlook/amo/metaverse/metaverse-live-entertainment/china, retrieved on 08-06-2023.

[293] *Virtual Reality Coexistence Blossoms on the Sea: The World's First Large-scale Metaverse Digital Twin Show at the Same Frequency*, "Art China", 2022, http://art.china.cn/txt/2022-09/17/content_42110766.shtml, retrieved 26-04-2023.

Image 11: Shanghai Tang fashion show at WDCC2022, in partnership with Activation Group
Soruce: ArtChina

This was the first event of this kind in China and perfectly conveyed Shanghai Tang's core values: the attachment to Chinese traditional culture displayed through the design and the background, and the attempt to communicate with its target audience composed of young people between 20 and 30 years old and provide them with a more immersive experience.

These events are set in an immersive environment and are thought of as a sort of narrative content where the user can dive deep into the brand's core values and feel part of the brand itself thanks to the interactive feature. Thus, virtual experiences are a powerful tool to foster an emotional connection with the brand.

Chapter 3

Case studies of luxury brands in China's Metaverse

Many Western luxury brands have already begun to explore the potential of the Metaverse as a new channel for fostering customer engagement and improving sales; they have started to create virtual showrooms, digital collectibles, and immersive experiences that allow customers to interact with their goods in new and exciting ways. Luxury brands are aware of the future potential that the Metaverse holds in China, and also of the importance that Chinese luxury consumers have. According to Bain & Company, China is poised to become the world's largest market for luxury goods by 2030 and accounts for 25%–27% of global luxury purchases.[294] Therefore, it is important to meet Chinese customers' needs and leverage on the Metaverse technologies to engage with customers in innovative ways and to create immersive environments while offering unique and personalised shopping experiences. Despite being a relatively new and emerging trend in China, the luxury fashion sector in the Metaverse is growing rapidly. According to Liu Jinyao, CEO of Activation Group,

> "Global Web 3.0 revenue in the fashion and luxury industry is expected to reach $50 billion in 2030, and the potential market for luxury groups will expand by about 10 percent. In China alone, the value of digital collections is expected to be around $4.2 billion by 2026".[295]

The amalgamation of the Metaverse, creative design, and fashion consumption is poised to revolutionise the industry and propel it into an exciting new era, while

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[294] D'ARPIZIO, Claudia, et al., *Renaissance in Uncertainty: Luxury Build on Its Rebound*, Bain & Company, 2023. https://www.bain.com/insights/renaissance-in-uncertainty-luxury-builds-on-its-rebound/retrieved on 28-05-2023.

[295] LI, Jun, *China's Fashion Metaverse: Who Is Shaping the Landscape?*, "Women's Wear Daily", 2022. https://wwd.com/business-news/technology/chinas-fashion-metaverse-shaping-the-landscape-1235353944/ retrieved on 14-04-2023.

simultaneously triggering significant disruptions. This convergence of digital realms, boundary-pushing artistic expression, and evolving consumer behaviours will fundamentally reshape how we perceive and engage with fashion[296]. Regina Zeng, Digital Innovation Lead at LVMH Digital APAC, claimed that

"The Metaverse is an interesting and high potential field for all businesses, a way to engage with young consumers and generations to come".[297]

Traditionally, luxury is not an industry where the adoption of new technology occurs at fast paces, however Bain & Company reported that levels of adoption are increasing compared to previous years and luxury houses are testing technologies such as NFT, metaverse, blockchain, holography, haptic gloves and screens, neural analysis, and scanner technology.[298] Luxury brands are increasingly acknowledging the significance of harnessing blockchain technology, from Virtual Idols to NFTs, to deliver the fundamental elements of luxury: exclusivity, traceability, and premium quality.[299] According to data disclosed by Vogue Business, 53% of fashion brands are actually investing in the gaming industry, and experimenting with filters on social media, digital avatars and virtual stores.[300] Luxury brands, however, must go beyond the mere hype surrounding the Metaverse concept and redirect their strategies towards effectively implementing the technologies themselves.[301] Fabernovel's report *Into*

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[296] LI, Jun, *China's Fashion Metaverse: Who Is Shaping the Landscape?*, "Women's Wear Daily", 2022. https://wwd.com/business-news/technology/chinas-fashion-metaverse-shaping-the-landscape-1235353944/ retrieved on 14-04-2023.

[297] NORDEY, Patrice, *Into the Chinaverse: How the Meta wave is hitting China*, Fabernovel, 2022.

[298] *Luxury and Technology: The Beginning of a New Era*, "Bain & Company", 2022. https://www.bain.com/about/media-center/press-releases/2022/luxury-and-technology-the-beginning-of-a-new-era/ Retrieved on 30-05-2023.

[299] GU, Aslada, *Metaverse, NFTs and Virtual Idols in China – What Luxury Brands Should Know*, "The Luxury Conversation, 2022. https://luxuryconversation.com/what-luxury-brands-need-to-know-about-the-metaverse-nfts-and-virtual-idols-in-china/ retrieved on 23-05-2023.

[300] ROMAGNOLI, Rumble, Discover three pioneers of luxury fashion in the metaverse, "The Drum", 2022. https://www.thedrum.com/opinion/2022/03/02/discover-three-pioneers-luxury-fashion-the-metaverse retrieved on 13-08-2023.

[301] LI, Jun, *China's Fashion Metaverse: Who Is Shaping the Landscape?*, "Women's Wear Daily", 2022. https://wwd.com/business-news/technology/chinas-fashion-metaverse-shaping-the-landscape-1235353944/ retrieved on 14-04-2023.

the Chinaverse highlights how luxury brands can leverage the Metaverse and related technology applications to achieve three crucial business objectives: branding, engagement, and conversion.[302]

According to the same Fabernovel's report, the online-to-offline experiences that fashion brands have strived for in the last 10 years will transcend into the Metaverse, and because of these benefits, many fashion brands have already begun incorporating Metaverse elements into their strategic plans to boost their business.[303]

3.1 Branding

The brand is the most valuable intangible asset on a firm's equity, and its management plays a crucial role in establishing and reinforcing the brand's position and overall image to potential customers, while differentiating the firm from competitors.[304] The brand can be defined as a combination of tangible and intangible attributes that work together to create brand awareness, shape brand identity, and cultivate a positive reputation for the brand.[305] Branding is a strategic marketing process aimed at shaping a strong and positive perception of a company and its offerings in the minds of customers. This process is essential for setting the brand apart from competitors and fostering customer loyalty.[306]

According to Keller and Lehmann's research (2006), the customer-brand relationship emerges as a pivotal aspect of branding. When examining brand equity from a customer-based standpoint, several perceptual and behavioural dimensions come into play. Firstly brand awareness is crucial, representing the

[302] NORDEY, Patrice, *Into the Chinaverse: How the Meta wave is hitting China*, Fabernovel, 2022.

[303] RYDER, Bethanie*, 'Into the Chinaverse': Looking ahead at China's Metaversal roadmap*, "JingDaily 精奢", 2022, https://jingdaily.com/into-the-chinaverse-looking-ahead-at-chinas-metaversal -roadmap/. retrieved on 14-04-2023.

[304] KELLER, Kevin Lane, and LEHMANN, Donald R., "Brands and Branding: Research Findings and Future Priorities", *Marketing Science*, 25, 6, 2006, 740-759.

[305] SAMMUT-BONNICI, Tanya, "Brand and Branding", *Wiley Encyclopedia of Management*, John Wiley & Sons, Ltd, 2015.

[306] *What is Branding in Marketing?* "Oberlo", https://www.oberlo.com/ecommerce-wiki/branding, retrieved on 24-04-2023.

customer's ability to recall and recognize the brand. Second is brand association, which refers to the connections customers establish between the brand and tangible or intangible stimuli, such as the brand's logo, messaging, or past experiences. Additionally, perceived quality holds enormous significance, encompassing the customer's judgement and perception of the quality of the product or service offered by the brand. Lastly, brand loyalty is vital, indicating the strength of the customer's commitment and attachment to the brand, leading to repeat purchases and advocacy.[307] Nordey suggests that leveraging Metaverse technologies can contribute to enhancing brand equity and awareness. By utilising these technologies, luxury brands, for example, can offer their customers more immersive experiences and events. This immersive approach allows brands to deepen their engagement with customers, foster stronger emotional connections, and ultimately strengthen brand awareness and equity in the marketplace.[308]

Building a strong brand equity is of utmost importance for luxury firms, as all the brand's associations are transferred from the brand to the customer, improving their overall image. Branding strategies, however, are not static. Luxury brands have effectively maintained their position by conveying essential values of their history and relied on their heritage to revitalise the firm and its goods or services. However, brands also respond to external market conditions or internal strategic shifts by undergoing rebranding initiatives to restore, preserve, or enhance their brand equity.[309] Luxury brands are traditionally associated with exclusivity, authenticity and hedonistic values, but with the advent of the Metaverse and the ongoing digital transformation, luxury firms are increasingly recognizing the need for a fresh approach to showcase their innovative spirit,

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[307] PARK, Hyejune; LIM, Rachel Esther. Fashion and the Metaverse: Clarifying the domain and establishing a research agenda. *Journal of Retailing and Consumer Service*, 74, 2023, pp. 1-12.

[308] NORDEY, Patrice, *Into the Chinaverse: How the Meta wave is hitting China*, Fabernovel, 2022.

[309] BLAZQUEZ, Marta, HENNIGER, Claudia E., "The effects of rebranding on customer-based brand equity", *International Journal of Business and Globalisation*, 22, 1, 2019, 91-109.

and stay relevant to customers.[310] This goes beyond merely boosting brand awareness: it is also a move to drive product releases and create a more meaningful impact in the market. This is relevant for Chinese luxury consumers, who are now demanding more than conventional digital experiences. They demand brands to deliver immersive encounters that surpass the ordinary, allowing them to fully engage with the brand's essence and offerings. As a result, brands are compelled to explore innovative venues where they can create extraordinary and captivating experiences that resonate deeply with their affluent clientele and showcase the brand's values that are deeply rooted in their DNA. By embracing this shift towards immersive engagement, brands have the opportunity to forge stronger connections, leave long-lasting impressions, and ultimately, thrive in the ever-evolving landscape of luxury consumerism.[311] The Metaverse represents a valuable asset on a brand's equity that can be leveraged on to open new growth opportunities. It also represents an unprecedented chance for brands to engage with their customers in an entirely novel manner, providing a distinctive, innovative, and deeply engaging platforms.[312]

The metaverse represents a powerful medium through which brands can communicate their brand image, values, and messages through creative virtual events. By harnessing the potential of the Metaverse, brands can create unique environments, such as showrooms, exhibitions or product launches, to create engaging and memorable experiences that captivate audiences, and ultimately build a stronger digital footprint for their branding strategies.[313]

[310] RYDER, Bethanie, *With The Metaverse's Branding Dilemma, How Is Web3 Redefining Luxury Standards In Retail?*, "JingDaily 精奢", 2023, https://jingdaily.com/web3-luxury-retail/, retrieved on 25-06-2023.
[311] NORDEY, Patrice, *Into the Chinaverse: How the Meta wave is hitting China*, Fabernovel, 2022.
[312] MACURA, Alex, *Effective Brand Building in the Metaverse*, "Search Engine Journal – Digital Experience", 2022, https://www.searchenginejournal.com/metaverse-brand-building/463990/#close, retrieved on 26-04-2023.
[313] NORDEY, Patrice, *Into the Chinaverse: How the Meta wave is hitting China*, Fabernovel, 2022.

3.1.1 DIOR on the Chinese Metaverse: the "On The Road" virtual fashion show

With the ability to reach a vast audience, virtual events in China allow brands to showcase their core purposes and values in a clear and engaging manner. By leveraging interactivity and visual showcases, brands can effectively communicate their brand story, foster a sense of community and inclusivity among participants, and ultimately drive customer engagement and loyalty.[314]

The French Maison Dior is acknowledged as one of the first luxury brands to have tapped into the *Chinese Metaverse* with its Menswear fashion show to be streamed on Xirang in April 2022. Dior had already accumulated previous experience in the Metaverse. In July 2021, the French house partnered with the Korean avatar app Zepeto to release digital makeup looks for users, and in September 2021 it collaborated with Ready Player Me for the promotional campaign of its fragrances. However, as the *Chinaverse* constitutes a separate ecosystem, it was crucial for Dior to provide its affluent young Chinese customer base with interactive encounters, and the continuous lockdowns in the Mainland, which forced many youths to be stuck at home, constituted the main factor pushing customers to spend more time online and to contemplate other ways of engaging with their favourite brands.[315]

Dior began integrating digital experiences into its branding strategies for the Chinese market in 2019 for the Qixi, that is the Chinese version of Valentine's Day. The French brand released an interactive WeChat mini program where Chinese users had to match loving letters to the Maison products to unveil the exclusive collection created by Dior of the occasion. Customers could then purchase goods directly from the online channel.[316] Later in 2021, the experiences

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[314] CHARPENTIER, Laure, and TERREAUX, Germain, *The Metaverse: A user's guide for brands*, "Oliver Wyman", 2022, https://www.oliverwyman.com/our-expertise/insights/2022/jul/the-metaverse-a-users-guide-for-brands.html, retrieved on 26-04-2023.

[315] *Dior Enters The China's Metaverse*, "CCP Luxury", 2022. https://cpp-luxury.com/dior-enters-chinas-metaverse/, retrieved on 13-07-2023.

[316] ZHEN, Ruonan, *How These 7 Luxury Brands Build Hype for Chinese Valentine's Day*, "JingDaily 精奢", 2019. https://jingdaily.com/7-luxury-brands-chinese-valentines-day/, retrieved on 15-07-2023.

that Dior created for Ready Player Me were made available also on the Chinese version of the platform, with digital rooms inspired by Dior's aesthetic and decorated with its most iconic goods, where customers could create their own personal avatar and wonder across Dior digitally-created world.[317] The Maison has also leveraged on AR technology to entice its Chinese customer base. Through the social app Meitu, Dior released seven different make-up filters for users to try on and replicate step-by-step through an audio guide. Meitu also provided the possibility to purchase the products shown in the tutorials.[318]

It was on April 28 2022 that Dior made a groundbreaking move by choosing to showcase its Fall 2022 menswear collection within the virtual realm.[319] The event, titled "On the Road" was presented in collaboration with the Hong Kong-based publisher Meta Media and it took place in the "Meta Ziwu" virtual skyscraper created by Ma Yansong, a highly acclaimed Chinese architect. The virtual space served as the perfect canvas to captivate and engage visitors, offering them a novel and boundary-pushing experience.[320] According to the iWeekly fashion magazine, the shape and the futuristic aesthetic of the Meta ZiWu symbolically incarnate "the proud courage of the younger generation to step forward and enter a new era". [321]

[317] WILLIAMS, Gemma A., *Dior Enters the Metaverse with Customizable Avatars*, "JingDaily精奢", 2021. https://jingdaily.com/dior-metaverse-ready-player-me-china/, retrieved on 15-07-2023.

[318] Meitu collaborates with Dior again, using digital technology to expand the beauty services space, "Meitu", 2021. https://www.meitu.com/en/media/334 retrieved on 15-07-2023.

[319] NAN, Lisa, *Dior Jumps Into China's Metaverse*, "JingDaily精奢", 2022. https://jingdaily.com/dior-metaverse-exhibition-xirang/ retrieved on 08-07-2023.

[320] NA, Qing, *Dior joined by Meta Media, unveiling world's first metaverse fashion show in China*, "Dao Insight", 2022. https://daoinsights.com/news/dior-joined-by-meta-media-unveiling-worlds-first-metaverse-fashion-show-in-china/, retrieved on 08-07-2023.

[321] *Kè lǐsī tīng·dí'ào xiéshǒu Meta Media chāo méitǐ jítuán tuīchū zhōngguó yuán yǔzhòu shǒu zhǎn `zài lùshàng'* 克里斯汀·迪奥携手Meta Media超媒体集团推出中国元宇宙首展「在路上」, (*Christian Dior joins forces with Meta Media to launch the first exhibition of China Metaverse "On the Road*), iWeekly 周末画报, 2022. https://mp.weixin.qq.com/s/nnKJ6IOFesy-9_FChRtlzg retrieved on 08-07-2023.

Image 12: Dior showcased its Fall 2022 menswear collection on Baidu's Metaverse app
Source: JingDaily 精奢

This extraordinary Metaverse event was made accessible through the social app XiRang. Dior's "On the Road" fashion show was the first time for Xirang to replicate a physical event into its self-developed Metaverse, thus it also represented an achievement for both Baidu and for the Chinese Metaverse industry in general.[322] In the virtual space created by Xirang and Dior users were enabled to explore the virtual landscape, witnessing stunning visual displays and encountering elements of Dior's Fall 2022 menswear collection. Through intuitive controls and interactive features, users had the opportunity to explore each garment in detail, gaining a comprehensive understanding of the craftsmanship and design behind the collection.[323] This allowed users to fully immerse into the brand's universe and to get to know its core values and innovative spirit. As a matter of fact, the theme of Dior's fashion show was Jack Kerouac's novel *On The*

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[322] NA, Qing, *Dior joined by Meta Media, unveiling world's first metaverse fashion show in China*, "Dao Insight", 2022. https://daoinsights.com/news/dior-joined-by-meta-media-unveiling-worlds-first-metaverse-fashion-show-in-china/, retrieved on 08-07-2023.

[323] NAN, Lisa, *Dior Jumps Into China's Metaverse*, "JingDaily精奢", 2022. https://jingdaily.com/dior-metaverse-exhibition-xirang/ retrieved on 08-07-2023.

Road, whose values are in line with those the brand wants to convey, that is the daring and exploratory spirit of young generations.[324]

Later in 2022, Dior continued its digitalisation strategy in China by replicating the innovative On The Road livestreaming with a second virtual event. Hosted in the very same virtual venue of the Meta Ziwu skyscraper on Xirang, on September 27, 2022 Dior livestreamed its Parisian womenswear Spring/Summer 2023 fashion show. This time, the virtual space featured large scale logos and iconic elements of the French luxury house.[325]

Image 13: Dior Sping/Summer 2023 women fashion show
Source: JingDaily精奢

These never-before-seen exhibitions not only showcase Dior's commitment to pushing the boundaries of the fashion industry forward, which is something inscribed into luxury brands' DNA, but also reflects Dior's deep understanding of the evolving needs and expectations of today's Chinese youth customers. These

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[324] NORDEY, Patrice, *Into the Chinaverse: How the Meta wave is hitting China*, Fabernovel, 2022.
[325] RYDER, Bethanie, Dior *Takes Its Chinaverse Presence To New Heights With Second Virtual Showcase*, "JingDaily精奢", 2022, https://jingdaily.com/dior-baidu-ziwu-ss23-livestream/, retrieved on 15-07-2023.

events not only are relevant to customers and clearly display the brand's core purposes, but they also convey a certain degree of exclusivity and scarcity, two characteristics which are sought by Chinese young luxury consumers. By harnessing cutting-edge Metaverse technology, Dior has crafted some extraordinary experiences that resonate with the digital-savvy generation and fosters a connection between fashion, technology, and personal identity. Through this unprecedented interactive experience, Dior is able to cultivate a unique dialogue with its young customers.[326] [327] [328] Dior's forward-thinking approach inspires individuals to envision a future where creative horizons are pushed to new frontiers, and where fashion becomes a powerful driver for self-expression.

3.2 Customer Engagement

Retaining customers inside the firm is becoming of increasing importance in today's competitive market, as engaging with existing customers is much more profitable than acquiring new ones. Therefore, customer engagement plays a key role in achieving long-term success for a brand.[329] By actively engaging customers and fostering meaningful interactions, businesses can retain their existing customer base, leading to increased loyalty and repeated purchases. This loyalty, in turn, boosts the brand's profitability over time.[330] Many academic research have highlighted that customer engagement is highly beneficial for the brand, as it is connected to customers taking an active role in co-production and

[326] NORDEY, Patrice, *Into the Chinaverse: How the Meta wave is hitting China*, Fabernovel, 2022.
[327] NA, Qing, *Dior joined by Meta Media, unveiling world's first metaverse fashion show in China*, "Dao Insight", 2022. https://daoinsights.com/news/dior-joined-by-meta-media-unveiling-worlds-first-metaverse-fashion-show-in-china/, retrieved on 08-07-2023.
[328] CHARPENTIER, Laure, and TERREAUX, Germain, The Metaverse: A user's guide for brands, "Oliver Wyman", 2022, https://www.oliverwyman.com/our-expertise/insights/2022/jul/the-metaverse-a-users-guide-for-brands.html, retrieved on 26-04-2023.
[329] BARARI, Mojtaba, et al., "A Meta-analysis of customer engagement behaviour", *International Journal of Consumer Studies*, 45, 2021, pp 457-477.
[330] PRENTICE, Catherine, CORREIA LOUREIRO, Sandra Maria, "Customer-based approach to customer engagement - The case of luxury brands", *Journal of Retailing and Consumer Services*, 43, 2018, pp 325-332.

value co-creation processes with the brand, all of which depend on the attitude that has attracted customers to the firm.[331] Kumar and Pansari developed the concept of engagement from a behavioural perspective and defined it as the attitude and level of connection between customers and people within the organisation, thus "the more positive the attitude and behavior and the higher the level of connectedness, the higher the level of engagement."[332] Kumar and Pansari developed a framework to conceptualise the customer engagement process into four aspects: purchasing firm's products which contributes to increasing the brand's value; customer referrals which have proved to be effective in both B2B and B2C for attracting new customers, who often happen to be more profitable than non-referred clients; social influence which takes the form of recommendations and product sharing on social media; customer knowledge which is achieved when customers are highly involved into the company and provide feedbacks and suggestions to improve the brand's goods or services.[333] [334] To achieve such high levels of customer loyalty and build strong and long-lasting relationships with customers, it is necessary to implement effective customer engagement strategies. The customer engagement process primarily involves improving the whole user experience, with the ultimate goal of making customers want to come back again. To this end, brand attitude is crucial for increasing sales and for creating positive feelings: when the brand attitude matches its communication strategies, the consumer is more willing to re-purchase branded goods and develops an emotional attachment to the brand.[335] When taking into consideration luxury brands, there are more factors

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[331] PRENTICE, Catherine, CORREIA LOUREIRO, Sandra Maria, "Customer-based approach to customer engagement - The case of luxury brands", *Journal of Retailing and Consumer Services*, 43, 2018, pp 325-332.

[332] KUMAR, V., PANSARI, Anita, "Competitive Advantage Through Engagement", *Journal of Marketing Research*, Vol. LIII, 2016, pp. 497–514.

[333] *Ibidem.*

[334] PRENTICE, Catherine, CORREIA LOUREIRO, Sandra Maria, "Customer-based approach to customer engagement - The case of luxury brands", *Journal of Retailing and Consumer Services*, 43, 2018, pp 325-332.

[335] LEE, Crystal, et al. *Building brand engagement in the Metaverce commerce: The role of branded non-fungible tokens (BNFTs)*, Electronic Commerce Research and Applications, 58, 2023, 101248

that should be accounted for. Fashion luxury goods convey uniqueness, premiumness and instil a sense of excitement in the customer, who is willing to buy such goods to express their personality and distinguish themselves. In other words, luxury products are highly desirable, which makes desire the primary motivation for customers to purchase them. According to Perugini and Bagozzi, the desire is a state of mind of a person who is highly motivated to take action. This decision-making driver is associated with social, emotional and evaluative motives, and often leads to an actual purchase or to engage with the brand.[336] Thus, luxury brands must curt their customer base with highly desirable products, which often come in a limited edition and consequently convey premiumness and exclusivity.

Today, Chinese consumers are demanding brands to reach them through new touchpoints that go beyond brick-and-mortar stores and mobile apps; above all, Chinese consumers, especially young ones, are not only looking for brand design, quality and craftsmanship, but especially for shared experiences and products that allow them to immerse into the brand's universe.[337]

Branded digital collectibles, powered by blockchain technology, have emerged as a new strategy to promote luxurious experiences and enhance long-term relationships with customers. Being a digital form of art, digital collectibles can easily convey a brand's identity through logos and iconic patterns or elements, thus becoming a new form of communication to increase brand engagement and customer loyalty.[338] As customers spend an increasing amount of time online, their interest in collecting digital elements is going to get deeper and deeper and new customer engagement strategies will be implemented by brands to entice customers, especially younger customers.[339] In their research, Lee, Ho and Xie

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[336] PERUGINI, Marco, BAGOZZI, Richard R., "The distinction between desires and intentions. *European Journal of Social Psychology*, 34, 2004, pp. 69-84.

[337] NORDEY, Patrice, *Into the Chinaverse: How the Meta wave is hitting China*, Fabernovel, 2022.
[338] LEE, Crystal, et al., *Building brand engagement in the Metaverse commerce: The role of branded non-fungible tokens (BNFTs)*, Electronic Commerce Research and Applications, 58, 2023.
[339] "The State of Fashion 2022", *McKinsey&Company*, 2021.

identified the main drivers of enthusiasm towards branded digital collectibles observed among customers in the Chinese market. The first driver that has emerged is scarcity, both in time and quantity dimensions. If the digital collectible is perceived as unavailable, then its value increases drastically, which encourages customers to purchase and obtain it. Second element is the financial value of the digital collectible, which if it's in line with the brand attitude and communication then customers perceive it as worth the investment in obtaining it. Third and fourth elements are both linked to the uniqueness, that is how the digital art stands out from others, and originality of the digital collectible.[340] Being authenticated through blockchain and verified, the specialness of the digital collectible is enhanced and it improves the brand attitude of customers.[341] Fifth, digital collectibles are perceived as prestigious and have a positive influence on the image of the owner. Often, digital collectibles come in the form of rewards, access keys, tickets for events or limited editions, thus their desirability is high and customers are more willing to purchase them. Communication consistency, being the sixth driver, plays a crucial role too in increasing brand attitude. Digital collectibles are often used as a marketing tool by luxury brands, but they must be consistent with the brand image and personality: the brand must be coherent in leveraging on its image, signals and messages also when creating digital collectibles to sell in the Metaverse. Finally, what has emerged from Lee et al. research as the seventh driver is the response of customers, which must be achieved through maintaining consistent communication. [342] It is possible to derive that digital collectibles can help luxury brands to renovate their customer experience by providing to their customers an

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[340] LEE, Crystal, et al., *Building brand engagement in the Metaverse commerce: The role of branded non-fungible tokens (BNFTs)*, Electronic Commerce Research and Applications, 58, 2023.

[341] "The State of Fashion 2022", *McKinsey&Company*, 2021.

[342] LEE, Crystal, et al., *Building brand engagement in the Metaverse commerce: The role of branded non-fungible tokens (BNFTs)*, Electronic Commerce Research and Applications, 58, 2023.

exclusive and highly personalised digital form of art. This, indeed, has positive effects on the customer engagement and further builds loyalty.[343]

In the fashion industry, digital collectibles uses are quite diverse, from collection art pieces to digital clothes collections, they can be embedded in video games and acquired when reaching a target, or they can be a part of the game story and have the possibility of being purchased. [344]

3.2.1 Gucci and digital collectibles: the partnership with Marsper

The Italian luxury house of Gucci has established its presence in the Metaverse starting from the early 2021 by undertaking a series of activities in the NFT field.[345] Gucci's Chief Marketing Officer and Executive Vice President Robert Triefus has overseen and guided all the brand's experiments in the Metaverse and he played a crucial role in developing a highly engaged community online. Triefus reported to McKinsey&Company that the Metaverse is not about marketing activities only: there are much more efforts behind which are worth the attempt, as the CMO believes that the Metaverse will become the main driver of growth with consequent shifts in the revenue stream paradigm.[346] In September 2022, Triefus was appointed by Gucci as the CEO of Vault and Metaverse Ventures, a revolutionary new position created by the Italian luxury brand to open their business to virtual experiences, online spaces and new strategies to position Gucci as a pioneer in the Metaverse.[347]

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[343] LE TANNEUR, Alexis, *Gucci's strategy in the Metaverse and NFT Universe*, Linkedin, 2022. https://www.linkedin.com/pulse/guccis-strategy-metaverse-nft-universe-alexis-le-tanneur/?published=t&trackingId=06oayf5WAP5SEij7M3ESHg%3D%3D retrieved on 23-07-2023.
[344] "The State of Fashion 2022", *McKinsey&Company*, 2021.
[345] LE TANNEUR, Alexis, *Gucci's strategy in the Metaverse and NFT Universe*, Linkedin, 2022. https://www.linkedin.com/pulse/guccis-strategy-metaverse-nft-universe-alexis-le-tanneur/?published=t&trackingId=06oayf5WAP5SEij7M3ESHg%3D%3D retrieved on 23-07-2023.
[346] "The State of Fashion 2022", *McKinsey&Company*, 2021.
[347] RYDER, Bethanie, *Gucci Appointed a Head of Metaverse. Should Luxury Follow Suit?*, "JingDaily 精奢", 2022, https://jingdaily.com/luxury-streetwear-metaverse-kith-hape/, retrieved on 15-10-2022.

Gucci's metaversal roadmap is a step-by-step strategy, moving from Web3 activations towards more complex and mature projects in the Metaverse that are consistent with the brand's spirit and implemented swiftly.[348] Gucci's first NFT collection ever released was a commemoration to the brand's 100th anniversary and it was a collaboration with the crypto art gallery SuperRare. *The Next 100 Years Of Gucci* collection celebrated the history of Gucci and each piece of art represented an iconic moment of the luxury house. Gucci's first foray into the Metaverse was not successful, as the collectibles' style was not consistent with that of Gucci.[349] The brand's second collection released in February 2022 with SUPERPLASTIC, SUPERGUCCI, was far more successful. The limited-edition collection of NFTs was a combination of Gucci's iconic elements and patterns on SUPERPLASTIC main characters which were sold at 20 million USD. The strategy behind this collection was that of rewarding users who purchased an NFT with a SUPERGUCCI Guggimon (a SUPERPLASTIC's character) collectible and a hand-crafted ceramic sculpture, a SUPERGUCCI collection exclusivity.[350] Another relevant experiment that CEO Trefius has led is the Gucci Vault Land on The Sandbox. The Gucci Vault is a virtual store which features the House's most iconic vintage clothes and creations that can be purchased by users to dress their avatars.[351] The store was only available for a limited period and players could engage in themed in-game experiences to earn exclusive rewards. The Vault experience also featured open spaces to foster the brand's community, and

[348] *Shaping A Strong Brand Narrative With Web3 - Gucci*, "DVRS", 2023. https://www.linkedin.com/pulse/shaping-strong-brand-narrative-web3-gucci-dvrs-studio/ retrieved on 25-07-2023.

[349] HU, Kenneth, *Metaverse Marketing Analysis: Exploring the Fashion Brand's Approach to NFTs and Virtual Worlds.*, "LinkedIn", 2023. https://www.linkedin.com/pulse/guccis-web3-metaverse-marketing-analysis-exploring-fashion-hu-kenneth/ retrieved on 25-07-2023.

[350] KARKAR, Sanad O., *How Gucci is leading the metaverse with web3 enablement*, "Medium", 2022. https://medium.com/blockchain-biz/how-gucci-is-leading-the-metaverse-with-web3-enablement-2af41d06eedb retrieved on 23-07-2023.

[351] LE TANNEUR, Alexis, *Gucci's strategy in the Metaverse and NFT Universe*, Linkedin, 2022. https://www.linkedin.com/pulse/guccis-strategy-metaverse-nft-universe-alexis-le-tanneur/?published=t&trackingId=06oayf5WAP5SEij7M3ESHg%3D%3D retrieved on 23-07-2023.

the main scope was that of educating young users to Gucci's history, similar to Gucci Town built on Roblox and Otherside Relics on Yuga Labs.[352]

Gucci's Metaverse strategy also taps into the Chinese Metaverse to entice the young Chinese customer base. In 2021, Gucci initiated its collaboration with the Chinese pop IP Marsper, the first IP to have ever joined the Gucci family.[353]

Image 14: Gucci collaborated with Chines IP Masper in 2021.
Source: JingDaily精奢

Marsper was created in 2020 by the LEPOP Group and its motto is "born to love". The IP has a nonchalant attitude, which makes it highly appreciated by Chinese pop culture enthusiasts, and promotes individualism and love. Since its

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[352] KARKAR, Sanad O., *How Gucci is leading the metaverse with web3 enablement*, "Medium", 2022. https://medium.com/blockchain-biz/how-gucci-is-leading-the-metaverse-with-web3-enablement-2af41d06eedb retrieved on 23-07-2023.

[353] FABRIS-SHI, Amy, *Marsper x Gucci comes to life in physical form to celebrate Gucci Cosmos in Shanghai*, "JingDaily精奢", 2023. https://jingdaily.com/gucci-collab-marsper-chinese-ip-gucci-cosmos/ retrieved on 25-07-2023.

establishment, Marsper has collaborated with different brands to showcase the meaning of love, including the successful campaign with Gucci.[354]

The collaboration was announced on December 23, 2021 and it was later introduced by the launch of three Marsper figures dressed in Gucci suits from the Aria Fall Winter Collection. The three collectibles depict the Chinese virtual IP in a white room and maintains a relaxed attitude, which is what draws the interest of Chinese young users. Marsper features Gucci's signature style with the Double-G on its ear and the red heart of the cheek.[355] Marsper aesthetic and motto perfectly align with Gucci's core values, namely those of self expression, inclusivity and diversity, and further stress the importance of fashion as a tool for expressing one's personality. [356]

This collaboration shows Gucci's attempt to delve into China's pop culture and resonate with today's shoppers, who generally belong to Millennial and Z generations and who are characterised by sophisticated tastes, high degree of knowledge and high salaries. The rise of China's sociocultural influence, along with the younger generation's exposure to global pop culture through the pervasive online infrastructure, contributes to their enthusiasm for cross-sector partnerships like Gucci x Marsper. By seamlessly blending Chinese cultural elements with modernity, Gucci is envisioning a fresh approach to luxury collaborations, aiming to shape the local pop culture landscape.[357] Furthermore, Gucci defines itself as a relevant brand among younger generations, thus its products are targeting them and with particular resonance with streetwear and

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[354] *The Metaverse in China: How Luxury Brands are Using Virtual Reality in Digital Marketing?*, "Fashion China Agency", 2022. https://fashionchinaagency.com/the-metaverse-in-china-how -luxury-brands-are-using-virtual-reality-in-digital-marketing/ retrieved on 25-07-2023.
[355] *Gucci's announces collaboration with Marsper*, "CCP Luxury", 2021. https://cpp-luxury. com/guccis-announces-collaboration-with-marsper/ retrieved on 25-07-2023.
[356] FABRIS-SHI, Amy, *Marsper x Gucci comes to life in physical form to celebrate Gucci Cosmos in Shanghai*, "JingDaily精奢", 2023. https://jingdaily.com/gucci-collab-marsper-chinese-ip-gucci -cosmos/ retrieved on 25-07-2023.
[357] *Gucci's announces collaboration with Marsper*, "CCP Luxury", 2021. https://cpp-luxury. com/guccis-announces-collaboration-with-marsper/ retrieved on 25-07-2023.

urban culture. Hence, the Gucci and Marsper collaboration perfectly fits into Gucci's strategy to reach young customers through virtual forms of art.[358]

The Gucci case study highlights the need for luxury brands to develop new patterns for engaging with their customers and foster the creation of a loyal community. Customer experience plays a pivotal role in building loyalty and the Metaverse and digital collectibles enable brands to personalise the experience and make it highly exclusive through limited editions and rewards.[359]

3.3 Conversion

The concept of conversion in marketing refers to the process of turning potential consumers into paying customers by guiding them through the customer journey. In the digital realm, the customer journey is unique for each individual, and it involves diverse tailored approaches to achieve success, thus understanding how the journey takes place is crucial for providing a satisfying customer experience.[360] Fashion luxury brands typically implement the AIDA conversion funnel framework to entice customers and convert their wants into actions. The AIDA framework was developed by Elian St. Elmo Lewis in 1898, and the acronym stands for Attention, Interest, Desire and Action. This model is employed to encourage customers to buy luxury products, with a particular focus on invoking desire to motivate customers towards making purchasing decisions. This approach aligns with the premise that stimulating a strong desire within potential buyers is a key tactic for driving sales.[361] The initial phase of this

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[358] *Shaping A Strong Brand Narrative With Web3 - Gucci*, "DVRS", 2023. https://www.linkedin.com/pulse/shaping-strong-brand-narrative-web3-gucci-dvrs-studio/ retrieved on 25-07-2023.

[359] LE TANNEUR, Alixis, *Gucci's strategy in the Metaverse and NFT Universe*, Linkedin, 2022. https://www.linkedin.com/pulse/guccis-strategy-metaverse-nft-universe-alexis-le-tanneur/?published=t&trackingId=06oayf5WAP5SEij7M3ESHg%3D%3D retrieved on 23-07-2023.

[360] PARK, *What Is a Conversion Funnel? Optimize Your Customer Journey*, "Search Engine Journal", 2023. https://www.searchenginejournal.com/conversion-funnel-how-to-optimize-customer-journey/474337/#search retrieved on 30-07-2023.

[361] PRENTICE, Catherine, CORREIA LOUREIRO, Sandra Maria, "Customer-based approach to customer engagement - The case of luxury brands", *Journal of Retailing and Consumer Services*, 43, 2018, pp 325-332.

marketing model centres on raising awareness about the brand's presence. This is achieved by employing captivating content and immersive experiences that effectively grab the customer's attention. At this stage, the primary objective is to ensure that the brand's existence stays impressed in the minds of potential customers. By doing so, luxury brands create genuine interest in the customer, which leads to the second step of the framework. Luxury brands often curate their marketing strategies to pique curiosity, encouraging individuals to explore further. This curiosity is fostered by conveying unique value propositions and establishing a sense of exclusivity around their products or services. Thirdly, luxury brands must leverage the desirability of their goods to convert leads into effective customers. To put it in other words, luxury brands strategically cultivate an emotional connection between their offerings and the aspirations of the customer.[362] Desire is in fact the primary motivation for purchasing luxury goods, and their desirability is associated with the social status and prestige obtained through the possession of said products. Thus, in the case of luxury brands, desire becomes the primary driver of the decision-making process and actually leads to a purchase.[363] The final stage of the AIDA framework is the call to action. Having effectively orchestrated the stages of attention, interest, and desire, luxury brands prompt customers to take definitive actions, such as making a purchase.

Luxury consumers, especially Chinese luxury consumers, are willing to spend premium prices not only for the product itself, but also for the whole experience surrounding the purchase of luxury goods. This is why luxury brands have leveraged on diverse technologies and strategies, such as XR devices, virtual influencers or virtual spaces, to enhance the shopping experience in physical

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[362] PARK, Lemuel, *What Is a Conversion Funnel? Optimize Your Customer Journey*, "Search Engine Journal", 2023. https://www.searchenginejournal.com/conversion-funnel-how-to-optimize-customer-journey/474337/#search retrieved on 30-07-2023.

[363] PRENTICE, Catherine, CORREIA LOUREIRO, Sandra Maria,, "Customer-based approach to customer engagement - The case of luxury brands", *Journal of Retailing and Consumer Services*, 43, 2018, pp 325-332.

stores and attract a higher number of potential paying customers in the Metaverse.[364]

When considering converting strategies in the Metaverse, however, it is necessary to adapt existing business models to the virtual landscape or to create new ones from scratch. Such business models can take very different forms to support the variety of activities and functions enabled by the Metaverse.[365] A business model (BM) identifies the business' set of activities, resources (both internal and external to the firm) and competencies and it serves two purposes related to value generation and capture. On one side, the business model focuses on generating value by addressing unfulfilled customer needs, which is about identifying what customers are looking for and delivering products or services that meet those demands; on the other side, the business model is designed to convert the generated value into tangible benefits, both financial and non-financial. This involves ensuring that the value created translates into actual gains for the customer.[366] Emerging technologies can disrupt the traditional structure of business models, enhancing revenues and income sources and reinventing ways of reaching customers.[367] New technologies can then be perceived as a strategic driver that create new opportunities for value creation. This, however, requires a deep understanding of the customers' and the market's needs, and in order to improve the brand offer accordingly.[368]

When adapting the business model to the Metaverse, the brand should be highlighting the added value that users can derive from shopping in the Metaverse, compared to the physical realm. Such added-value may lie in the

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[364] *Luxury Goods: in-depth market analysis*, "Statista", 2023. https://www.statista.com/study/61582/luxury-goods-in-depth-market-analysis/ retrieved on 30-07-2023.

[365] DUWE, Daniel, et al., *Enabling the Metaverse. Whitepaper on international user preferences, business models and innovation processes in the Metaverse*, Fraunhofer-Institut für System- und Innovationsforschung ISI, Karlsruhe, 2022.

[366] MANCUSO, Ilaria, et al., "Digital Business Model Innovation In The Metaverse: How To Approach Virtual Economy Opportunities", *Information Processing and Management International Journal*, 60, 2023.

[367] *Ibidem.*

[368] *Ibidem.*

social nature of Metaverse activities, or in the personalisation of the brand's products which can be pushed to higher levels than options given in physical stores. All these opportunities can potentially increase the firm's revenues, as customers are willing to try these new virtual experiences.[369] Furthermore, Chinese consumers have been demanding more virtual figures and digital collectibles, which represent a unique opportunity for luxury firms to capitalise on to increase revenue streams.[370]

In much the same way as in the physical world, virtual influencers are proving to be a powerful instrument for enhancing brand recognition and visibility through strategic campaigns. This, in turn, enables them to reach a broader spectrum of potential customers and ultimately stimulate increased purchases. The landscape of virtual influencer marketing in China is witnessing consistent growth, and the projections are remarkable. As highlighted by a report from Daxue Consulting, the value of this sector will surge to an impressive 1.5 billion RMB by 2023. This substantial growth is indicative of the compelling impact virtual influencers are having on the market.[371] Virtual influencers harness the power of social media platforms to establish a relationship with their audience, mainly composed by Gen Z and Millennials. By offering a peek into their personal lives, these digital personas effectively forge an emotional connection with their followers.[372] Aesthetic resonances and lifestyle congruence play a pivotal role in amplifying the appeal of virtual influencers among Millennials and Gen Z. This interest is rooted in the affinity these market segments have for the aesthetic and lifestyles. The attractiveness of these endorsers is so strong that they have spurred a new

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[369] DUWE, Daniel, et al., *Enabling the Metaverse. Whitepaper on international user preferences, business models and innovation processes in the Metaverse*, Fraunhofer-I.nstitut für System- und Innovationsforschung ISI, Karlsruhe, 2022.

[370] NORDEY, Patrice, *Into the Chinaverse: How the Meta wave is hitting China*, Fabernovel, 2022.

[371] LUO, Lijun, KIM, Wonkyung, "How virtual influencers' identities are shaped on Chinese social media: A case study of Ling", *Global Media and China*, 0, 2023, pp. 1-19.

[372] ANAND, Jhawar, et al., "The emergence of virtual influencers: a shift in the influencer marketing paradigm", Young Consumers, 24, 4, 2023, pp. 468-484.

trend among Chinese consumers to increasingly purchase branded products.[373] As a matter of fact, luxury brands are increasingly relying on virtual influencers to endorse their products and drive sales in response to Chinese consumers' interest in anime characters and videogames content.[374] One of the distinctive advantages of collaborating with virtual influencers is the high degree of control firms possess over these entities. Above all advantages, brands have the possibility to tailor the virtual influencer's character, identity, and overall style to align with the brand's values. The flexibility offered by virtual influencers presents a unique avenue for luxury brands to seamlessly integrate these digital personas into their marketing strategies, tapping into the consumer interest in a manner that resonates profoundly.[375]

Similarly to virtual influencers, digital collectibles represent a strategic factor driving the reinvention of business models and the digital transformation. Young consumers are expressing their increasing interest towards digital collectibles, which opens unprecedented opportunities for luxury brands to increase the accessibility of their pieces to a wider customer base.[376] Digital collectibles are reshaping the traditional business models by reinventing ecommerce and interactions. They serve both as an instrument to amplify transactions and a strategy to deepen the relationship between the firm and its customers.[377] NFTs inject an unprecedented layer of value and exclusivity into the Metaverse ecosystem, as these unique digital tokens substantiate ownership and authenticity of digital assets, including artworks, collectibles and pieces of digital clothes ready to be worn by users-like avatars. NFTs, in their role of digital

[373] CHIU, Candy Lim, HO, Han-Chiang, "Impact of Celebrity, Micro-Celebrity, and Virtual Influencers on Chinese Gen Z's Purchase Intention Through Social Media", *Sage Open*, 2023, pp 1-18.

[374] *Ibidem.*

[375] LUO, Lijun, KIM, Wonkyung, "How virtual influencers' identities are shaped on Chinese social media: A case study of Ling", *Global Media and China*, 0, 2023, pp. 1-19.

[376] NORDEY, Patrice, *Into the Chinaverse: How the Meta wave is hitting China*, Fabernovel, 2022.

[377] MANCUSO, Ilaria, et al., "Digital Business Model Innovation In The Metaverse: How To Approach Virtual Economy Opportunities", *Information Processing and Management International Journal*, 60, 2023.

ownership certificates, redefine consumer-brand interactions.[378] By granting digital assets with distinct provenance and rarity, NFTs enhance the intrinsic connection customers feel towards a brand or product.[379] Gen Z users are willing to spend millions of RMB to obtain a digital collectible, which are released in limited editions in most of the cases. Furthermore, digital collectibles are a powerful means of data collection. As a matter of fact, collectibles are utilised as a universal customer identification and provide the brand with rich data about their customers to further personalise products and advertisement that better cater to their demand.[380]

A luxury fashion brand can create new business models leveraging digital collectibles to combine their physical offer with he virtual real to generate new revenue sources,[381] and virtual influencers further promote the visibility of the brand.

3.3.1 Burberry on the Double 11 Metaverse Art Exhibition: leveraging virtual influencers and digital collectibles

Burberry is acknowledged as a pioneer of the Metaverse for being one of the first luxury brands to have tapped into the virtual world. The British brand has leveraged Metaverse instruments to set up innovative in-store experiences and to merge physical products with extended reality to create new engaging experiences. [382] Beside providing innovative opportunities to capitalise on, the

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[378] DUWE, Daniel, et al., *Enabling the Metaverse. Whitepaper on international user preferences, business models and innovation processes in the Metaverse*, Fraunhofer-I.nstitut für System- und Innovationsforschung ISI, Karlsruhe, 2022.

[379] MANCUSO, Ilaria, et al., "Digital Business Model Innovation In The Metaverse: How To Approach Virtual Economy Opportunities", *Information Processing and Management International Journal*, 60, 2023.

[380] MACURA, Alex, *Effective Brand Building in the Metaverse*, "Search Engine Journal – Digital Experience", 2022, https://www.searchenginejournal.com/metaverse-brand-building/4639 90/#close, retrieved on 26-04-2023.

[381] NORDEY, *Into the Chinaverse: How the Meta wave is hitting China*, Fabernovel, 2022.

[382] ROMAGNOLI, Rumble, *Discover three pioneers of luxury fashion in the metaverse*, "The Drum", 2022. https://www.thedrum.com/opinion/2022/03/02/discover-three-pioneers-luxury-fash ion-the-metaverse retrieved on 13-08-2023.

Metaverse also caters to brands' need to "be where their customers are", explained Rachel Waller, Burberry's Global VP Innovation at the MAD Fest in London in 2022. As customers are constantly moving between their real life and the digital version of themselves, brands need to reinvent themselves and rely on their core values of creativity, self-expression and brand imaginary to create new virtual experiences. The Metaverse, believes Waller, is an "extension for brands to lean in and start to build their imagination in entirely new ways." [383] Burberry is therefore committed to reinvent existing customer journeys to adapt them to the consumers of the future, that is the young digital natives of today. Gaming offers the ideal starting point for connecting with younger audiences. [384] In June 2021, Burberry announced its first partnership with Mythical Games, a latest-generation game company building gaming environments on blockchain technology where players and creators can be stakeholders and owners of digital collectibles.[385] The collection was launched into the Blankos Block Party where users can collect and trade NFT vinyl toys. Burberry launched its own limited-edition branded digital collectible toys dressed up in Burberry's TB Summer Monogram and inspired by the brand's Animal Kingdom house code, together with a set of NFT accessories like jetpacks, armbands and pool shoes.[386] The NFT Burberry Blanko collection sold out in less than 30 seconds,[387] demonstrating how partnerships allow the brand to tap into new communities of

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[383] *Burberry Global VP Innovation: The Metaverse Is The 'New Frontier Of Storytelling' For Brands*, "MadFest London", 2022. https://www.madfestlondon.com/insights/burberry-metaverse-story telling retrieved on 13-08-2023.

[384] *Ibidem.*

[385] *Burberry X Blankos Block Party: New NFT collection and social space*, "Burberry", 2022. https://www.burberryplc.com/news/brand/2022/burberry-x-blankos-block-party--new-nft-c ollection-and-social-sp retrieved on 13-08-2023.

[386] SHEARSMITH, Tom, *Burberry unveils first NFT collection with Mythical Games' Blankos Block Party*, "The Industry.Fashion", 2021. https://www.theindustry.fashion/burberry-unveils-first-nft -collection-with-mythical-games-blankos-block-party/ retrieved on 13-08-2023.

[387] ROMAGNOLI, Rumble, *Discover three pioneers of luxury fashion in the metaverse*, "The Drum", 2022. https://www.thedrum.com/opinion/2022/03/02/discover-three-pioneers-luxury-fash ion-the-metaverse retrieved on 13-08-2023.

potential customers and test innovations.[388] The Burbery and Blankos Block Party partnership was renewed in June 2022 with the creation of branded community space within the game where users could socialise and live unique experiences together, "The Oasis" resort. The ultimate NFT collection included branded accessories such as boomboxes, TB sliders, lucky horseshoe necklaces and seashell-inspired accessories for mobile phones that users could purchase and add to their virtual portfolio.[389] Burberry's commitment to the gaming industry was pushed a step further with the partnership with Minecraft to launch a branded adventure on the game. *Burberry: Freedom To Go Beyond* is inspired by the iconic pixelated visual of Minecraft and features the brand's codes and monogram.[390] The adventure comes with a capsule collection of fifteen pieces of digital clothes developed specifically for players to wear them on Minecraft, such as coats, sweatshirts, tshirts, and accessories like scarves and hats. The clothes are featured with the brand's monogram, and all players wearing them are given the chance to complete a set of challenges which take place across four worlds developed in partnership with Minecraft.[391]

Even though the gaming industry is thriving, the strategy adopted by Burberry in China doesn't rely on in-game adventures, but on the flourishing retail and online commerce sector. In 2020, Burberry invested extensively on widening its digital channels in China to respond to young luxury consumers' behaviour changing and adapting to the new normal brought by the outburst of Covid pandemic. Social media became the primary source of interaction and shopping,

[388] *Burberry Global VP Innovation: The Metaverse Is The 'New Frontier Of Storytelling' For Brands*, "MadFest London", 2022. https://www.madfestlondon.com/insights/burberry-metaverse-story telling retrieved on 13-08-2023.

[389] *Burberry X Blankos Block Party: New NFT collection and social space*, "Burberry", 2022. https://www.burberryplc.com/news/brand/2022/burberry-x-blankos-block-party--new-nft-c ollection-and-social-sp retrieved on 13-08-2023.

[390] TAN, Azrin, The latest from the fashion metaverse: Rimowa launches NFTs, Burberry's capsule collection on Minecraft and more, "Vogue", 2022. https://vogue.sg/updates-from-fashion-meta verse/ retrieved on 13-08-2023.

[391] TOTARO, Romina, *Metaverse fashion: Burberry creates a collection for Minecraft*, "Domus", 2022. https://www.domusweb.it/en/design/gallery/2022/11/10/burberry-presents-new-collection-i n-the-minecraft-metaverse.html, retrieved on 13-08-2023.

thus Burberry developed its first social retail store. The store opened in Shenzhen in August 2020 and features ten rooms that visitors can explore to get involved and experience the brand in a more intense way, using social media. Inside the store, there are QR codes to be scanned to unlock exclusive content and to get to know more about Burberry's history and its products, thus a strong interaction is encouraged. Burberry also secured a partnership with WeChat to push the immersive experience further. Through the mini-programs, store visitors can earn rewards and unlock exclusive content and experiences. Every user is assigned a character, which is the deer mascote of Burberry, that evolves as users engage with elements inside the store and obtain new outfits. Rewards for achieving results can also involve obtaining collectibles on the mini-program. Such use of digital collectibles gives birth to a series of business models that rely on virtual figures to foster brand loyalty.[392]

Following the approach of leveraging on the vast Chinese e-commerce sector, Burberry joined Tmall for the sensational e-commerce shopping festival Double 11, or 11.11, of 2021, making forays into the highly-regulated NFT scene.[393] That year, Tmall debuted with its Double 11 Metaverse Art Exhibition ("元宇宙艺术展" *Yuán yǔzhòu yìshù zhǎn* in Chinese), a platform available to users within the mobile app, from October 20 to November 11.[394] The Exhibition was presented by AYAYI, a strategic choice as Chinese customers are increasingly interested in engaging with emerging technologies and are inspired by the flawless aesthetic of AYAYI, who at the time already accounted for more than 114 million followers. AYAYI presented Burberry's deer mascote in the form of digital collectibles.[395]

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[392] *Burberry uses Virtual reality in China*, "Marketing To China", 2020. retrieved on https://marketingtochina.com/burberry-uses-virtual-reality-in-china/ 13-08-2023.

[393] LUNG, Tiffy, *Burberry Bridges NFT With Physical Limited-Edition Scarf Ahead of Alibaba Single's Day*, Forbes, 2021. https://www.forbes.com/sites/tiffanylung/2021/10/24/burberry-bridges-nft-with-physical-limited-edition-scarf-ahead-of-alibaba-singles-day/?sh=28f2d4942259 retrieved on 04-06-2023.

[394] *Double 11 Now a Bigger Deal for Marketers Worldwide*, "Eastward Media", 2021. https://www.eastwardmedia.com/2021/11/12/double-11-now-a-bigger-deal-for-marketers-worldwide/ retrieved on 04-05-2023.

[395] LUNG, Tiffy, *Burberry Bridges NFT With Physical Limited-Edition Scarf Ahead of Alibaba Single's Day*, Forbes, 2021. https://www.forbes.com/sites/tiffanylung/2021/10/24/burberry-bridges-nft

The Exhibition featured eight limited collections in the form of digital collectibles from global luxury brands like Burberry, Coach, Longines and others, with their own digital collection of NFTs. AYAYI is the creator of the 15 sets of collections showcased by eight brands on the Exhibition.[396]

Image 14: Virtual idol AYAYI and Burberry deer mascot for the Double 11 Art Exhibition on Xiaohongshu
Source: Jing Daily

Customers could purchase them at affordable prices, which were set at a low level to remove access barriers and allow the highest number of customers to

-with-physical-limited-edition-scarf-ahead-of-alibaba-singles-day/?sh=28f2d4942259 retrieved on 04-06-2023.

[396] *"Tiān māo shǒujiè yuán yǔzhòu yìshù zhǎn: Yī chǎng gānle gè gà de mài huò xiù"* 天猫首届元宇宙艺术展：一场尴了个尬的卖货秀 (*Tmall's First Metaverse Art Exhibition: An Embarrassing Selling Show*), "Sina.com", 2021. http://vr.sina.cn/news/2021-10-20/detail-iktzscyy0793755.d.html retrieved on 13-08-2023.

take part in the digital event. For the Double 11 day, Burberry unveiled its 3D animated deer mascot. Users were enabled to click on the deer to interact with it and see it donning its branded Burberry scarf. This digital collectible design concept has been ideated by AYAYI, who is a good friend of Burberry's deer and acts as its fashion advisor. [397] For the event. Burberry launched 1000 digital collectibles of its deer mascote wearing the limited-edition scarf, and they were sold at 29000 RMB, that is the equivalent of 454 US dollars.[398] Each NFT had a unique identifier code to guarantee the uniqueness of the piece; users could then access the digital collectible from the Alipay mini program and use it as a wallpaper and emoji.[399] All the available pieces were sold within the first day of pre-sale, showing the huge potential that this new market holds. Upon the purchase of the NFT on Alipay mini program, the customer would also receive the physical version of the scarf. [400]

The event was a success, as consumers were intrigued by the digital collection and all collectibles sold out in a day. The sale of NFTs, however, was still in its infancy and to grant a successful result it was still necessary to pack digital collectibles together with their physical counterpart. The exclusivity element was maintained, as both physical and digital items were limited-editions.[401] Tmall created a revolutionary distribution method compared to the traditional sale of

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[397] LUNG, Tiffy, *Burberry Bridges NFT With Physical Limited-Edition Scarf Ahead of Alibaba Single's Day*, Forbes, 2021. https://www.forbes.com/sites/tiffanylung/2021/10/24/burberry-bridges-nft-with-physical-limited-edition-scarf-ahead-of-alibaba-singles-day/?sh=28f2d4942259 retrieved on 04-06-2023.

[398] *Ibidem.*

[399] TIAN, Tian, "*Alibaba Launches 'Metaverse' For China's Black Friday*, "Radii China", 2021. https://radii.co/article/alibaba-launches-metaverse-for-chinas-black-friday retrieved on 13-08-2023.

[400] *Double 11 Now a Bigger Deal for Marketers Worldwide*, "Eastward Media", 2021. https://www.eastwardmedia.com/2021/11/12/double-11-now-a-bigger-deal-for-marketers-worldwide/ retrieved on 04-05-2023.

[401] GU, Aslada, *Metaverse, NFTs and Virtual Idols in China – What Luxury Brands Should Know*, "The Luxury Conversation, 2022. https://luxuryconversation.com/what-luxury-brands-need-to-know-about-the-metaverse-nfts-and-virtual-idols-in-china/ retrieved on 23-05-2023.

digital collectibles at fixed prices, which allows to generate new revenue streams and helps luxury brands to explore new business models within the Metaverse.[402]

---

[402] NORDEY, Patrice, *Into the Chinaverse: How the Meta wave is hitting China*, Fabernovel, 2022.

References

Alibaba Cloud official website, https://www.alibabacloud.com/solutions/metaverse, retrieved on 3-03-2023.

ABE, Kentaro, *Millennials inject new vigour into China's luxury market*, "NIKKEI Asia", 2018, https://asia.nikkei.com/Politics-Economy/Economy/Millennials-inject-new-vigor-into-China-s-luxury-market retrieved on 30-05-2023.

AR & VR – China, "Statista", 2023, https://www.statista.com/outlook/amo/ar-vr/china. retrieved on 10-05-2023.

Ài méi zīxún |2021 nián zhōngguó yuán yǔzhòu hángyè yònghù xíngwéi fēnxī rèdiǎn bàogào, 艾媒咨询|2021年中国元宇宙行业用户行为分析热点报告*, (iiMedia Consulting | 2021 China Metaverse Industry User Behavior Analysis Hotspot Report),* "iiMedia.cn", 2022. https://www.iimedia.cn/c400/82999.html retrieved on 10-03-2023.

"*Ài qí yì:* 2019 *Xūnǐ ǒuxiàng guānchá bàogào*", 爱奇艺：*2019虚拟偶像观察报告*, "Sina.com", 2020. https://tech.sina.com.cn/roll/2020-03-06/doc-iimxyqvz8178817.shtml retrieved on 09-05-2023.

Acquisition, Engagement, Retention: How to Drive SaaS Growth, "UserPilot", 2022. https://userpilot.com/blog/acquisition-engagement-retention-saas/#:~:text=Acquisition%20is%20all%20about%20getting,to%20keep%20using%20your%20product retrieved on 05-05-2023.

ANAND, Jhawar, PRASHANT, Kumar, SANJEEV, Varshney, "The emergence of virtual influencers: a shift in the influencer marketing paradigm", Young Consumers, 24, 4, 2023, pp. 468-484.

AYAYI: *The first metahuman in China has already made an "offline appearance" at Guerlain's event*, "Daxue Consulting", 2021. https://daxueconsulting.com/ayayi-first-metahuman-china-guerlain-event/ retrieved on 09-05-2023.

BAEK, Eunsoo; HAINES, Shelley; FARES, Omar H.; HUANG, Zhihong; HONG, Yuwei, LEE, Seung Hwam Mark. Defining digital fashion: Reshaping the field via systematic review. *Computers in human behavior*, 137, 2023, pp 1-16.

Baidu Announces Upgraded Baidu Brain 7.0 and Mass Production of 2nd Generation Kunlun AI Chip, PRNewswire, 2021. https://www.prnewswire.com/news-releases/baidu-announces-upgraded-baidu-brain-7-0-and-mass-production-of-2nd-generation-kunlun-ai-chip-301358126.html retrieved on 30-03-2023.

BALL, Matthew. *The Metaverse And How It Will Revolutionize Everything*, Liveright Publishing Corporation, New York, 2022

—, *The Metaverse: What it is, Where to find it, and Who will build it*, "MatthewBall.cv", 2020, https://www.matthewball.vc/all/themetaverse, retrieved on 22-02-2023.

BARARI, Mojtaba, ROSS, Mitchell, THAICHON, Sara, SURACHARTKUMTONKUN, Jiraporn, "A Meta-analysis of customer engagement behaviour", *International Journal of Consumer Studies*, 45, 2021, pp 457-477.

BATCHER, Natalie. Metaverse Retailing – An analysis of the current status and future potentials of the metaverse in the retail and consumer goods industry. *Master thesis*, 2022.

BI, Ran, *How Xiaohongshu Rides The Digital Fashion Wave*, "JingDaily精奢", 2022. https://jingdaily.com/xiaohongshu-digital-fashion-nft/ Retrieved on 30-07-2023.

BLAZQUEZ, Marta, HENNIGER, Claudia E., "The effects of rebranding on customer-based brand equity", *International Journal of Business and Globalisation*, 22, 1, 2019, 91-109.

BOURLAKIS, Michael; PAPAGIANNIDIS, Savvas; LI, Feng. "Retail spatial evolution: paving the way from traditional to metaverse retailing". *Electronic Commerce Research*, 9, 2009, p 135-148.

BROOKE, Sofia, *China Makes Cryptocurrency Transactions Illegal: An Explainer*, "China Briefing", https://www.china-briefing.com/news/china-makes-cryptocurrency-transactions-illegal-an-explainer/, retrieved on 31-03-2023.

Building a Metaverse with Chinese Characteristics, "The Economist", 2022,

https://www.economist.com/china/2022/02/04/building-a-metaverse-with-chinese-characteristics, retrieved on 19-03-2023.

BUCCHOLZ, Katharina, *E-commerce grows faster in China*, Statista, 2021. https://www.statista.com/chart/23941/e-commerce-as-share-of-all-retail-commerce-selected-countries/ retrieved on 12-06-2023.

Burberry Global VP Innovation: The Metaverse Is The 'New Frontier Of Storytelling' For Brands, "MadFest London", 2022. https://www.madfestlondon.com/insights/burberry-metaverse-storytelling retrieved on 13-08-2023.

Burberry X Blankos Block Party: New NFT collection and social space, "Burberry", 2022. https://www.burberryplc.com/news/brand/2022/burberry-x-blankos-block-party--new-nft-collection-and-social-sp retrieved on 13-08-2023.

Burberry uses Virtual reality in China, "Marketing To China", 2020. retrieved on https://marketingtochina.com/burberry-uses-virtual-reality-in-china/ 13-08-2023.

ByteDance debuts first metaverse-like social app Party Island, "Dao Insight", 2022, https://daoinsights.com/news/bytedance-debuts-first-metaverse-like-social-app-party-island/ retrieved on 28-03-2023.

Cali, Umit; Kuzlu, Murat; Karaarslan, Enis; Jovanovic, Vukica. Opportunities and Challenges in Metaverse for Industry 4.0 and Beyond Applications. *Conference paper: 1st Global Emerging Technology Blockchain Forum: Blockchain & Beyond*, 2002, 1-6.

CATZEL, David. *The metaverse: An evolution in transportation, travel, and hospitality*, "Microsoft Industry Blog", 2022, https://www.microsoft.com/en-us/industry/blog/automotive/2022/11/29/the-metaverse-an-evolution-in-transportation-travel-and-hospitality/#:~:text=Meta%20means%2C%20%E2%80%9Cbeyond%2C%E2%80%9D,and%20virtual%20reality%20(VR), retrieved on 21-02-2023.

CHAN, Celia; DENG, Iris, "QQ, *the Grandaddy of China's Social Media Scene, Gains New Life by Appealing to Generation Z*," South China Morning Post, 2018. https://www.scmp.com/tech/article/2162288/qq-grandaddy-chinas-social-media-scene-gains-new-life-appealing-generation-z retrieved on 15-06-2023.

CHANG, Che. *Chinese investors pile into 'metaverse,' despite official warnings*, "The China Project" 2021 https://thechinaproject.com/2021/09/24/chinese-investors-pile-into-metaverse-despite-official-warnings/ retrieved on 12-03-2023.

_, *The Top 10 Metaverse companies in China*, "The China Project", 2022, https://thechinaproject.com/2022/02/15/the-top-10-metaverse-companies-in-china/, retrieved on 20-02-2023.

CHANDAR, Vija. *Investing in the Metaverse: New opportunities in virtual worlds*", "Morgan Stanley", 2022 https://www.morganstanley.com/articles/metaverse-opportunities-virtual-reality-augmented-reality-technologies retrieved on 8-03-2023.

CHARPENTIER, Laure; TERREAUX, Germain. *The Metaverse: A user's guide for brands*, "Oliver Wyman", 2022, https://www.oliverwyman.com/our-expertise/insights/2022/jul/the-metaverse-a-users-guide-for-brands.html, retrieved on 26-04-2023.

CHAO, Eveline, How WeChat Became China's App For Everything, "Fast Company", 2017. https://www.fastcompany.com/3065255/china-wechat-tencent-red-envelopes-and-social-money retrieved on 15-06-2023.

"*Chāojí QQ xiù*" 超级QQ秀 (*Super QQ Show*), Baidu, 2022. https://baike.baidu.com/item/%E8%B6%85%E7%BA%A7QQ%E7%A7%80/59378818, last retrieved 26-03-2023.

CHEN, Mei. *Alibaba's 11.11 Global Shopping Festival – the opportunity for luxury brands*, "Internet Retailing", 2022. https://internetretailing.net/alibabas-11-11-global-shopping-festival-the-opportunity-for-luxury-brands/ Retrieved on 8-05-2023.

CHENG, Roger. RUI, Ma. *How ByteDance Became the World's Most Valuable Startup*, Harvard Business Review, 2022. https://hbr.org/2022/02/how-bytedance-became-the-worlds-most-valuable-startup, retrieved 21-03-2023.

China's first metaverse industry group inaugurated, looking into the new industry potentials, "Global Times", 2021, https://www.globaltimes.cn/page/202111/1238811.shtml, retrieved on 19-03-2023.

China's Metaverse and Its Retail Applications, Daxue Consulting & AYO, 2022.

China's NFT market in 2022: The most comprehensive analysis guide, "Enlybee", 2022. https://www.enlybee.com/the-most-comprehensive-report-to-chinas-nft-market/ retrieved on 20-05-2023.

China GDP Annual Growth Rate, "Trading Economics", 2022. https://tradingeconomics.com/china/gdp-growth-annual retrieved on 11-03-2023.

China Luxury Market Guide, "Marketing to China", 2022. https://marketingtochina.com/china-luxury-market-guide/ Retrieved on 28-05-2023.

China's Online Retail Sales up 4% in 2022, "ChinaDaily.com.cn", 2023. https://www.chinadaily.com.cn/a/202301/17/WS63c66032a31057c47ebaa272.html retrieved on 24-04-2023

CHITTUM, Morgan. *Morgna Stanley sees $8 trillion Metaverse market – In China alone*, "Blockworks", 2022, https://blockworks.co/news/morgan-stanley-sees-8-trillion-metaverse-market-eventually, retrieved 8-03-2023

CHIU, Candy Lim, HO, Han-Chiang, "Impact of Celebrity, Micro-Celebrity, and Virtual Influencers on Chinese Gen Z's Purchase Intention Through Social Media", *Sage Open*, 2023, pp 1-18.

Kè lǐsī tīng·dí'ào xiéshǒu Meta Media chāo méitǐ jítuán tuīchū zhōngguó yuán yǔzhòu shǒu zhǎn `zài lùshàng' 克里斯汀·迪奥携手Meta Media超媒体集团推出中国元宇宙首展「在路上」, (*Christian Dior joins forces with Meta Media to launch the first exhibition of China Metaverse "On the Road*), "iWeekly 周末画报", 2022. https://mp.weixin.qq.com/s/nnKJ6IOFesy-9_FChRtlzg retrieved on 08-07-2023.

COLARIZI, Alessandra, *WecChat, Una Super-App Per Conquistare Il Mercato Cinese*, "China Files", https://www.china-files.com/wechat-una-super-app-per-

conquistare-il-mercato-cinese/ 2022. retrieved on 15-06-2023.

CRAMER-FLOOD, Ethan, *In global historic first, ecommerce in China will account for more than 50% of retail sales*, "eMarketer, Insider Intelligence", 2021. https://www.insiderintelligence.com/content/global-historic-first-ecommerce-china-will-account-more-than-50-of-retail-sales retrieved on 19-03-2023.

D'AGOSTINO, Cristina. *The number of consumers grew by 153% on Tmall Luxury Pavilion in 2021*, "Luxury Tribune", 2022. https://www.luxurytribune.com/en/the-number-of-consumers-grew-by-153-on-tmall-luxury-pavilion-in-2021 retrieved on 8-05-2023.

D'ARPIZIO, Claudia; LEVATO, Federica; PRETE, Filippo, De MONTGOLFIER, Joelle; KAVANAGH, Allison. "Renaissance in Uncertainty: Luxury Build on Its Rebound", *Bain-Altagamma Luxury Goods Worldwide Market Study*, Bain & Company, 2022.

D'ARPIZIO, Claudia; LEVATO, Federica; PRETE, Filippo, De MONTGOLFIER, Joelle; KAVANAGH, Allison. *Renaissance in Uncertainty: Luxury Build on Its Rebound*, Bain & Company, 2023. https://www.bain.com/insights/renaissance-in-uncertainty-luxury-builds-on-its-rebound/retrieved on 28-05-2023.

DI, Zhenming 翟振明. CHENG, Sumei 成素梅. CHENG, Long 陈龙. DU, Junfei 杜骏飞. WANG, Tianfu 王天夫. CHENG, Boqing 成伯清. CAO, Gang 曹刚. CENG, Jun 曾军. XIA, Deyuan 夏德元. PENG, Feng 彭锋. JIANG, Yuhui 姜宇辉, "Rènshí yuán yǔzhòu: Wénhuà, shèhuì yǔ rénlèi de wèilái" 认识元宇宙：文化、社会与人类的未来 (*Understanding the Metaverse: Culture, Society and the Future of Manking*), in *Tansuo yu Zhengming*, 390, 2022, pp. 65-94

DING, Jeffrey, *ChinAI #206: China's Virtual Reality Push Gets Real*, "ChinAI Newsletter", 2022, https://chinai.substack.com/p/chinai-206-chinas-virtual-reality, retrieved on 19-03-2022

DIONISIO, Jhon David N.. BURNS III, William G.. GILBERT, Richard, "3D virtual worlds and the metaverse: Current status and future possibilities", *ACM Computing Surveys*, 45, 3, 2013, pp. 1-38.

Dior Enters The China's Metaverse, "CCP Luxury", 2022. https://cpp-luxury.com/dior-enters-chinas-metaverse/ retrieved on 13-07-2023.

Double 11 Now a Bigger Deal for Marketers Worldwide, "Eastward Media", 2021. https://www.eastwardmedia.com/2021/11/12/double-11-now-a-bigger-deal-for-marketers-worldwide/ retrieved on 04-06-2023.

DUDARENOK, Ashley, *Digital China: Metaverses for Business: How Companies in China and the rest of the world are exploring Web3*, Alarice International Limited, Hong Kong, 2023.

DUDARENOK, Ashley; CHAN, Jacqueline; JIANG, Syca; YANG, Kathy, *Mega Report: China E-commerce, Marketing and Digital Space 2023*, "Alarice" and "Chozan", 2023.

DUWE, Daniel. BUSCH, Malte. WEISSENBERGER-EIBL, Marion A. *Enabling the Metaverse. Whitepaper on international user preferences, business models and innovation processes in the Metaverse*, Fraunhofer-Institut für System- und Innovationsforschung ISI, Karlsruhe, 2022.

FABRIS-SHI, Amy, *Marsper x Gucci comes to life in physical form to celebrate Gucci Cosmos in Shanghai*, "JingDaily精奢", 2023. https://jingdaily.com/gucci-collab-marsper-chinese-ip-gucci-cosmos/ retrieved on 25-07-2023.

FU, Zijing, *China aims to propel the real economy with virtual economy – Metaverse*, "Pingwest", 2022, https://en.pingwest.com/a/10513 retrieved on 18-04-2023.

GAO, Yu 高昱, "Yuán yǔzhòu chǎnyè fāzhǎn jí fēnxī bàogào" "元宇宙产业发展及分析报告" (An analytical report on the Metaverse Industry), in *Kējì lánpíshū: Wénhuà kējì chuàngxīn fāzhǎn bàogào* 科技蓝皮书:文化科技创新发展报告 (*Annual Report of Culture and Technology Innovative Development*), 社会科学文献出版社 (Social Sciences Academic Press China), 2022, pp 92-108.

Gen Z: A Rising Power in the Chinese Market and 7 Characteristics of their Digital Lifestyles, ChoZan, 2019. https://chozan.co/blog/gen-z-the-rising-power-in-chinese-market/#Read_more_related_posts retrieved on 01-06-2023.

GILLIS, Alexander S., *Augmented reality (AR)*, "TechTarget", 2022. https://www.techtarget.com/whatis/definition/augmented-reality-AR retrieved on 09-05-2023.

GLOWIK, Mario, "Case study Alibaba Group: A successful Chinese and international digital business giant?", *Global Strategies in Service Industry: Dynamic, Analysis, Growth*, 2017, pp. 96-105.

GU, Aslada, *Metaverse, NFTs and Virtual Idols in China – What Luxury Brands Should Know*, "The Luxury Conversation, 2022. https://luxuryconversation.com/what-luxury-brands-need-to-know-about-the-metaverse-nfts-and-virtual-idols-in-china/. Retrieved on 23-05-2023.

"Guǎngzhōu shì huángbù qū gōngyè hé xìnxī huà jú guǎngzhōu kāifā qū jīngjì hé xìnxī huà jú guǎngzhōu shì huángbù qū kēxué jìshù jú guǎngzhōu kāifā qū kējì chuàngxīn jú guānyú yìnfā guǎngzhōu shì huángbù qū guǎngzhōu kāifā qū cùjìn yuán yǔzhòu chuàngxīn fāzhǎn bànfǎ de tōngzhī" 广州市黄埔区工业和信息化局 广州开发区经济和信息化局 广州市黄埔区科学技术局 广州开发区科技创新局关于印发广州市黄埔区 广州开发区促进元宇宙创新发展办法的通知, (Bureau of Industry and Information Technology, Huangpu District, Guangzhou, Bureau of Economics and Information Technology, Guangzhou Development Zone, Bureau of Science and Technology, Guangzhou Development Zone, Science and Technology Innovation Bureau, Huangpu District, Guangzhou), 广州市黄埔区人民政府广州开发区管委员, 2022. http://www.hp.gov.cn/gzjg/qzfgwhgzbm/qgyhxxhj/xxgk/content/post_8171935.html retrieved on 30-03-2023.

Gucci's announces collaboration with Marsper, "CCP Luxury", 2021. https://cpp-luxury.com/guccis-announces-collaboration-with-marsper/ retrieved on 25-07-2023.

"Gōngyè hé xìnxī huà bù guānyú jiākuài tuījìn xūnǐ xiànshí chǎnyè fāzhǎn de zhǐdǎo yìjiàn", 工业和信息化部关于加快推进虚拟现实产业发展的指导意见, *Guiding Opinions of the Ministry of Industry and Information Technology on Accelerating the Advancement of the Development of the Virtual Reality Industry*, "MIIT", 2018, http://www.pkulaw.cn/fulltext_form.aspx?Db=chl&Gid=327850, retrieved 18-03-2023.

Guiding Opinions of the Ministry of Industry and Inofrmation Technology on Accelerating the Advancement of the Development of Virtual Reality Industry, (translation of official document "工业和信息化部关于加快推进虚拟现实产业发展的指导意见 by Chinese Ministry of Industry and Information Technology), 2018, http://lawinfochina.com/display.aspx?id=29677&lib=law, retrieved 18-03-2023.

HAN, Xiuyun 韩秀云, "Hán Xiùyún Jiǎng Jīngjì" 韩秀云讲经济 (Han Xiuyun Talks about Economy), CITIC Publishing House, Beijing, 2020.

HEEJEONG, Jeong. YOUKYOUNG, Yi. DONGSOO, Kim. "An Innovative E-Commerce Platform Incorporating Metaverse To Live Commerce", *International Journal of Innovative Computing, Information and Control*, 18, 1, 2022, pp. 221-229

HE, Dandan; LIU, Zheng; YANG, Qingqing; MA, Lei. The Development of Digital Collection Platform under Responsible Innovation Framework: A Study on China's Non-Fungible Token (NFT) Industry. *Journal of Open Innovation: Technology, Market, and Complexity*, 2022, 8(4), 203.

HINE, Emmie. DING, Jeffrey. "Action Plan for the Integration and Development of Virtual Reality and Industrial Applications, 2022-2026", (translation of original document "虚拟现实与行业应用融合发展行动计划" by Chinese Ministry of Industry and Information Technology), 2022, retrieved on 18-03-2023.

How the world sees the Metaverse and Extended Reality: A 29-country Global Advisor Survey, "Ipsos", 2022.

How luxury brands can leverage the metaverse and NFTs to win over China, "Daxue Consulting", 2022. https://daxueconsulting.com/luxury-brands-metaverse-and-nfts/ retrieved on 20-05-2023.

HU, Kenneth, *Metaverse Marketing Analysis: Exploring the Fashion Brand's Approach to NFTs and Virtual Worlds.*, "LinkedIn", 2023. https://www.linkedin.com/pulse/guccis-web3-metaverse-marketing-analysis-exploring-fashion-hu-kenneth/ retrieved on 25-07-2023.

Inside LVMH Certificate: May 2023 Promotion of LVMH

INTERESSE, Giulia. *China's Debut in the Metaverse: trends to Watch (Updated)*, "China Briefing", 2022, https://www.china-briefing.com/news/metaverse-in-china-trends/, retrieved on 21-02-2023.

JIA Zhou, FELIX Poh, CHERIE Zhang, and DANIEL Zipser, *China's Gen Z are coming of age: Here's what marketers need to know*, McKinsey, 2020,

https://www.mckinsey.com/cn/our-insights/our-insights/chinas-gen-z-are-coming-of-age-heres-what-marketers-need-to-know, retrieved on 14-06-2023.

"Jùtóu dōu zài bùjú de yuán yǔzhòu, ālǐ yuán jìng rúhé cóng yún yóuxì qiērù" 巨头都在布局的元宇宙，阿里元境如何从云游戏切入 (The Metaverse where tech giants are entering, how does Alibaba Cloud cut in from cloud games), Sohu.com, 2021. https://www.sohu.com/a/506442651_204728 retrieved on 16-07-2023.

KATES, Matt, *Ready to Engage With Customers in the Metaverse? Here's What You Need to Know*, "Total Retail", 2022, https://www.mytotalretail.com/article/ready-to-engage-with-customers-in-the-metaverse-heres-what-you-need-to-know/ retrieved 27-04-2023.

KARKAR, Sanad O., *How Gucci is leading the metaverse with web3 enablement*, "Medium", 2022. https://medium.com/blockchain-biz/how-gucci-is-leading-the-metaverse-with-web3-enablement-2af41d06eedb retrieved on 23-07-2023.

KELLER, Kevin Lane, LEHMANN, Donald R., "Brands and Branding: Research Findings and Future Priorities", *Marketing Science*, 25, 6, 2006, 740-759.

KHARPAL, Arjun. *China's tech giants push toward an $8 trillion metaverse opportunity — one that will be highly regulated*, "CNBC", 2022 https://www.cnbc.com/2022/02/14/china-metaverse-tech-giants-latest-moves-regulatory-action.html, retrieved on 16-03-2023.

Kivisense Officially Launches Its AR Cloting Try-on, "Kivisense", 2022. https://tryon.kivisense.com/blog/ar-clothing-try-on-launch/ Retrieved 8-05-2023.

KOETSE, Manya. *Luo Tianyi and the Booming Virtual Idol Market in China*, "What's on Weibo", 2021. https://www.whatsonweibo.com/luo-tianyi-and-the-booming-virtual-idol-market-in-china/ retrieved on 21-05-2023.

KULASOORIYA, Duleesha. KHOO, Michelle. TAN, Michelle. KIANCHONG, Lim, *The Metaverse in Asia: Strategies for Accelerating Economic Impact*, "Deloitte Centre for the Edge", 2022.

KUMAR, V., PANSARI, Anita, "Competitive Advantage Through Engagement", *Journal of Marketing Research,* Vol. LIII, 2016, pp. 497–514.

LANGER, Daniel. *Why Luxury Brands Must Be Strategic With NFTs in the Metaverse*, "JingDaily 精奢", 2022 https://jingdaily.com/metaverse-art-luxury-brands-prada-gucci/ retrieved on 18-06-2023.

_, *3 Rules for Luxury In Web3 and the Metaverse*, "JingDaily 精奢" 2022, https://jingdaily.com/luxury-metaverse-projects-pricing-tatchaland/ retrieved on 18-06-2023.

LANNES, Bruno; XING, Weiwei. *Setting a New Pace for Personal Luxury Growth in China*, "Bain & Company", 2023. https://www.bain.com/insights/setting-a-new-pace-for-personal-luxury-growth-in-china/ retrieved on 29-05-2023.

LE TANNEUR, Alexis, *Gucci's strategy in the Metaverse and NFT Universe*, Linkedin, 2022. https://www.linkedin.com/pulse/guccis-strategy-metaverse-nft-universe-alexis-le-tanneur/?published=t&trackingId=06oayf5WAP5SEij7M3ESHg%3D%3D retrieved on 23-07-2023.

LEE, Crystal; HO, Tzu-Ya; XIE, Hong-Hao, *Building brand engagement in the Metaverce commerce: The role of branded non-fungible tokens (BNFTs)*, Electronic Commerce Research and Applications, 58, 2023, 101248.

Leveraging the Web3 Ecosystem for Luxury Brands, Inside LVMH, 2022. https://www.insidelvmh.com/blog/47/post/view/186 retrieved on 28-05-2023.

LI, Jiaxiang. "*ByteDance's metaverse investments continue with acquisition of Chinese virtual social platform PoliQ*", South China Morning Post, 2022. https://www.scmp.com/tech/big-tech/article/3183208/bytedances-metaverse-investments-continue-acquisition-chinese-virtual retrieved on 29-03-2023.

LI, Jun, *China's Fashion Metaverse: Who Is Shaping the Landscape?*, "Women's Wear Daily", 2022. https://wwd.com/business-news/technology/chinas-fashion-metaverse-shaping-the-landscape-1235353944/ retrieved on 14-04-2023.

LI, Mowen, *Virtual livestreamers a new trend*, "ChinaDaily", 2022. https://global.chinadaily.com.cn/a/202205/28/WS6291847aa310fd2b29e5f857.html retrived on 14-04-2023.

LI, Zheng 李峥, LI, Mo 李默, ZHANG, Lanshu 张岚舒, HAN, Yafeng 韩亚峰, "Yuán yǔzhòu yǔ guójiā ānquán" 元宇宙与国家安全 (Metaverse and National Security)", China Institutes of Contemporary International Relations CICIR 中国现代国际关系研究院, 2021 https://www.ccvalue.cn/article/1365966.html

LI, Zhiqiang 李志强, *"Yuán yǔzhòu de qūyù fāzhǎn bù pínghéng,5 gè zhōngxīn yǒuwàng gòujiàn wǒguó yuán yǔzhòu wǎngluò"* 元宇宙的区域发展不平衡, *5*个中心有望构建我国元宇宙网络, *(The regional development of the metaverse is unbalanced, and the five centres are expected to build a metaverse network in China)*,"STCN 证券时报网", http://www.stcn.com/article/detail/784361.html retrievded on 5-3-2023.

LIU, Yingcong. MA, Xinran. YAN, Sihan. "Research on the Acquisition of Pico by Byte Dance", *Proceedings of the 2022 2nd International Conference on Economic Development and Business Culture (ICEDBC 2022)*, Amsterdam, Atlantis Press, pp. 1265-1271.

LIU, Zihao. *China Says No To Speculative All-Virtual Metaverse*, "JingDaily精奢", 2022, https://jingdaily.com/china-metaverse-real-economy-industrial-power/, retrieved on 14-04-2022.

_, *How Luxury brands can enter China's Crypto-forbidden Metaverse*, "JingDaily精奢", 2022, https://jingdaily.com/luxury-brand-nft-partnerships-china/, retrieved on 23-05-2023.

LUNG, Tiffy, *Burberry Bridges NFT With Physical Limited-Edition Scarf Ahead of Alibaba Single's Day*, Forbes, 2021. https://www.forbes.com/sites/tiffanylung/2021/10/24/burberry-bridges-nft-with-physical-limited-edition-scarf-ahead-of-alibaba-singles-day/?sh=28f2d4942259 retrieved on 04-06-2023.

LUO, Lijun, KIM, Wonkyung, "How virtual influencers' identities are shaped on Chinese social media: A case study of Ling", *Global Media and China*, 0, 2023, pp. 1-19.

Luxury and Technology: *The Beginning of a New Era*, "Bain & Company", 2022. https://www.bain.com/about/media-center/press-releases/2022/luxury-and-technology-the-beginning-of-a-new-era/ retrieved on 30-05-2023.

Luxury Goods: in-depth market analysis, "Statista", 2023. https://www.statista.

com/study/61582/luxury-goods-in-depth-market-analysis/ retrieved on 30-07-2023.

LVMH-SMU *Luxury Conference* 2021: *The Future Of Luxury In Asia*. XUE, Rane and GU, Xiaolei intervention.

Mǎhuàténg: Téngxùn yǒu dàliàng tànsuǒ hé kāifā yuán yǔzhòu de jìshù hé nénglì, 马化腾：腾讯有大量探索和开发元宇宙的技术和能力, *Ma Huateng: Tencent has a lot of technologies and capabilities to explore and develop the "metaverse"* , "Sohu", 2021, https://www.sohu.com/a/500491155_549351, retrieved on 25-03-2023.

MA Arnold, *Turning 'Metaverse Hype' Into Consumption in China*, "Jing Daily 精奢", 2022, https://jingdaily.com/china-metaverse-virtual-fashion-consumption-shenzhen/, retrieved on 14-10-2022.

MA, Yihan, *Generation Z consumers in China – statistics & facts*, "Statista", 2023. https://www.statista.com/topics/9889/gen-z-consumers-in-china/#topicOverview retrieved on 23-05-2023.

MA, Si. *Growth a big reality for AR, VR domestic market*, "ChinaDaily", 2023. https://global.chinadaily.com.cn/a/202301/11/WS63bdeee6a31057c47eba8d4d.html retrieved on 19-06-2023.

MACURA, Alex, *Effective Brand Building in the Metaverse*, "Search Engine Journal – Digital Experience", 2022, https://www.searchenginejournal.com/metaverse-brand-building/463990/#close, retrieved on 26-04-2023.

MADASOGLU, Piril, *Metaverse Marketing: Save your Spot in the Future*, "Popupsmart", https://popupsmart.com/blog/metaverse-marketing, retrieved on 20-04-2023.

Mainland China: Potential 2035 Economic Impact of the Metaverse, "Deloitte Centre for the Edge", 2022.

MANCUSO, Ilaria, PETRUZZELLI MESSENI, Antonio, PANNIELLO, Umberto, "Digital Business Model Innovation In The Metaverse: How To Approach Virtual Economy Opportunities", *Information Processing and Management International Journal*, 60, 2023.

—, "Innovating Agri-food Business Models After The Covid-19 Pandemic: The Impact Of Digital Technologies On The Value Creation And Value Capture Mechanism". *Technology Forecasting & Social Change*, 190, 2023.

MANCUSO, Ilaria, PETRUZZELLI MESSENI, Antonio, PANNIELLO, Umberto, NESPOLI, Chiara, "A Microfoundation Perspective on Business Model Innovation: The Case Of Roblox And Meta In Metaverse", *IEEE Transations On Engeneering Management*, 2023.

MAX, A. Cherney. *The Metaverse Goes Beyond Facebook. Watch These Stocks*, "Barron's", 2021, https://www.barrons.com/articles/metaverse-stocks-51628888 2189?utm_content=buffer74a8f&utm_medium=social&utm_source=facebook.co m&utm_campaign=buffer

Meitu collaborates with Dior again, using digital technology to expand the beauty services space, "Meitu", 2021. https://www.meitu.com/en/media/334 retrieved on 15-07-2023.

MELNIK, Jeffrey. *China's "National Champions": Alibaba, Tencent, and Huawei*, "Education about Asia", 24, 2, 2019, pp. 28-33.

Metaverse eCommerce – China, Statista 2023, https://www.statista.com/out look/amo/metaverse/metaverse-ecommerce/china, retrieved on 17-04-2023.

Metahumans in China: The next frontier of KOL marketing, "Daxue Consulting", 2021. https://daxueconsulting.com/metahumans-in-china/ retrieved on 09-05-2023.

METCALF, Michael, *Brand Building in the Metaverse: The opportunities and risks*, "Latana", 2022, https://latana.com/post/branding-in-the-metaverse/, retrieved on 26-04-2023.

Metaverse Live Entertainment – China, Statista, 2022. https://es.statista.com/outlook/amo/metaverse/metaverse-liveentertainment /china, retrieved on 08-06-2023.

Microsoft Ignite 2021 Satya Nadella Keynote Transcript https://news.microsoft.com/wp-content/uploads/prod/2021/11/Microsoft-Ign ite-2021-Satya-Nadella.pdf retrieved on 28-02-2023.

MING, Zeng. "Alibaba and the Future of Business", Harvard Business Review, September-October 2018 issue, pp. 88-96.

MOLES, Sabrina. *Influencer Virtuali: In Cina vince il Metaverso senza umani*, "China Files", 2022, https://www.china-files.com/influencer-virtuali-in-cina-vince-il-metaverso-senza-umani/.

Morgan Stanley picks names to play China metaverse, CNBC, 2022. https://www.cnbc.com/2022/02/01/stocks-to-buy-morgan-stanley-picks-names-to-play-china-metaverse.html retrieved on 2-04-2023.

MOKAYA, Stephen. *Games Industry in China. Economic and Political Factors*, GRIN Verlag, Munich, 2022.

NA, Qing, *Decoding China's virtual human industry – an interview with Nicky Yu from RM GROUP, creator of China's first Meta human AYAYI*, "Dao Insight", 2023. https://daoinsights.com/exclusives/decoding-chinas-virtual-human-industry-an-interview-with-nicky-yu-from-rm-group-creator-of-chinas-first-meta-human-ayayi/ retrieved on 09-05-2023.

—, *Dior joined by Meta Media, unveiling world's first metaverse fashion show in China*, "Dao Insight", 2022. https://daoinsights.com/news/dior-joined-by-meta-media-unveiling-worlds-first-metaverse-fashion-show-in-china/, retrieved on 08-07-2023.

NAN, Lisa. *Introducing China's Top Virtual Idols: Ayayi and Luo Tianyi*, "JingDaily 精奢", 2021. https://jingdaily.com/virtual-idols-china-celebrities-crackdown-ayayi-luo-tianyi/ retrieved on 20-06-2023.

—, *Dior Jumps Into China's Metaverse*, "JingDaily精奢", 2022. https://jingdaily.com/dior-metaverse-exhibition-xirang/ retrieved on 08-07-2023.

NORDEY, Patrice. *Into the Chinaverse: How the Meta wave is hitting China*, Fabernovel, 2022

NFT - China, "Statista", 2023. https://www.statista.com/outlook/dmo/fintech/ digital-assets/nft/china retrieved on 22-05-2023.

Online Games – China, Statista 2023, https://www.statista.com/outlook/dmo

/digital-media/video-games/online-games/china#revenue retrieved on 31-03-2023.

PARK, Hyejune; LIM, Rachel Esther. Fashion and the Metaverse: Clarifying the domain and establishing a research agenda. *Journal of Retailing and Consumer Service*, 74, 2023, pp. 1-12.

PARK, Lemuel, What Is a Conversion Funnel? Optimize Your Customer Journey, "Search Engine Journal", 2023. https://www.searchenginejournal.com/conversion-funnel-how-to-optimize-customer-journey/474337/#search retrieved on 30-07-2023.

PERUGINI, Marco, BAGOZZI, Richard R. "The distinction between desires and intentions. *European Journal of Social Psychology*, 34, 2004, pp. 69-84.

PRENTICE, Catherine, CORREIA LOUREIRO, Sandra Maria, "Customer-based approach to customer engagement - The case of luxury brands", *Journal of Retailing and Consumer Services*, 43, 2018, pp 325-332.

"Qbit-AI "12 *zhāng PPT kàn dǒng zhōngguó xūnǐ shùzì rén chǎnyè xiànzhuàng: Yìngyòng bùzhǐ yú xūnǐ ǒuxiàng,2030 nián shìchǎng dá 2700 yì | liàngzǐ wèi zhìkù (fù xiàzài)* " Qbit-AI "12张PPT看懂中国虚拟数字人产业现状：应用不止于虚拟偶像，2030年市场达2700亿｜量子位智库（附下载），(12 PPTs to understand the status quo of China's virtual digital human industry: the application is not limited to virtual idols, and the market will reach 270 billion in 2030｜Qubit Think Tank (download attached) , 2021. [https://www.qbitai.com/2021/09/28721.html.](https://www.qbitai.com/2021/09/28721.html) Retrieved on 28-04-2023.

"*Qǐ chá chá fābù* "*zhōngguó yuán yǔzhòu shāngbiāo shēnqǐng qǐyè huàxiàng bàogào*": *Zhōngguó yuán yǔzhòu de wèilái zài zhè 1692 jiā gōngsī shǒu lǐ*! 企查查发布《中国元宇宙商标申请企业画像报告》：中国元宇宙的未来在这1692家公司手里！(Qichacha released the "China Metaverse Trademark Application Enterprise Portrait Report": The future of China Metaverse is in the hands of these 1692 companies! ）金融虎, 2022. http://www.jinronghu.com/news/36166.html retrieved on 9-03-2023.

ROBERTSON, Derek. *The Metaverse with Chinese characteristics*, "Politico", 2022, https://www.politico.com/newsletters/digital-future-daily/2022/07/13/the-m

etaverse-with-chinese-characteristics-00045647. retrieved on 8-03-2023.

Roblox China official website https://robloxdev.cn/, retrieved on 25-03-2023.

ROMAGNOLI, Rumble, *Discover three pioneers of luxury fashion in the metaverse*, "The Drum", 2022. https://www.thedrum.com/opinion/2022/03/02/discover-three-pioneers-luxury-fashion-the-metaverse retrieved on 13-08-2023.

RYDER, Bethanie, *Gucci Appointed a Head of Metaverse. Should Luxury Follow Suit?*, "JingDaily 精奢", 2022, https://jingdaily.com/luxury-streetwear-metaverse-kith-hape/, retrieved on 15-10-2022.

—, *With The Metaverse's Branding Dilemma, How Is Web3 Redefining Luxury Standards In Retail?*, "JingDaily 精奢", 2023, https://jingdaily.com/web3-luxury-retail/, retrieved on 25-06-2023.

—, '*Into the Chinaverse*': *Looking ahead at China's Metaversal roadmap*, "JingDaily 精奢", 2022, https://jingdaily.com/into-the-chinaverse-looking-ahead-at-chinas-metaversal-roadmap/ retrieved on 14-04-2023.

—, *Hermès' Entry into the Metaverse Hails a New Era for Digital Luxury Fashion*, "JingDaily 精奢", 2022, https://jingdaily.com/hermes-trademark-application-metaverse/, retrieved on 14-10-2022.

—, *Fendi Joins Forces With Meta for Its Virtual AR Sneakers Experience*, "JingDaily 精奢", 2022, https://jingdaily.com/fendi-meta-virtual-ar-sneakers-experience/, on retrieved 14-10-2022.

—, *Taboao Launches 'Metaverse Mall' in Time for China's 618 Shopping Festival*, "JingDaily精奢 ", 2022, https://jingdaily.com/taobao-launches-metaverse-mall-in-time-for-chinas-618-shopping-festival/ retrieved on 26-03-2023.

—, *Alibaba's Latest Web3 Project Proves A New Era Of Retail Is Officially Here*, "JingDaily精奢", 2022, https://jingdaily.com/alibaba-metaverse-double-11-festival-retail/, retrieved on 16-06-2023.

—, *Virtual Influencers Are The New Faces Of Luxury Campaigns In Asia*, "JingDaily 精奢", 2022. https://jingdaily.com/virtual-influencers-asia-campaigns-ayayi-imma-noah/ retrieved on 17-05-2023.

—, *Dior Takes Its Chinaverse Presence To New Heights WithSecond Virtual Showcase*, "JingDaily精奢", 2022, https://jingdaily.com/dior-baidu-ziwu-ss23-livestream/, retrieved on 15-07-2023.

SAMMUT-BONNICI, Tanya, "Brand and Branding", *Wiley Encyclopedia of Management*, John Wiley & Sons, Ltd, 2015.

SCOTT, *Baidu: What It Is, What It Does, History, Stock, Vs. Google*, "Investopedia", 2023. https://www.investopedia.com/terms/b/baidu.asp, retrieved on 30-03-2023.

Shaping A Strong Brand Narrative With Web3 - Gucci, "DVRS", 2023. https://www.linkedin.com/pulse/shaping-strong-brand-narrative-web3-gucci-dvrs-studio/ retrieved on 25-07-2023.

SHEARSMITH, Tom, *Burberry unveils first NFT collection with Mythical Games' Blankos Block Party*, "The Industry.Fashion", 2021. https://www.theindustry.fashion/burberry-unveils-first-nft-collection-with-mythical-games-blankos-block-party/ retrieved on 13-08-2023.

SHEN, Bingqing; TAN, Weiming; GUO, Jingzhi; ZHAO, Linshuang; QIN, Peng. How to Promote User Purchase in Metaverse? A Systematic Literature Review on Consumer Behavior Research and Virtual Commerce Application, *Design. Applied Sciences*. 11, 11087, 2021.

SINHA, Aashish, *What is Metaverse? How Metaverse can be used for customer acquisition?* "Linkedin", 2023, https://www.linkedin.com/pulse/what-metaverse-how-can-used-customer-acquisition-aashish-sinha?utm_source=share&utm_medium=member_ios&utm_campaign=share_via, retrieved on 28-04-2023.

Step into R-SPACE: Build your Chinaverse on Xiaohongshu, Fabernovel. https://asia.fabernovel.com/2022/08/09/step-into-r-space-build-your-chinaverse-on-xiaohongshu/ retrieved on 4-06-2023.

TAN, Azrin, *The latest from the fashion metaverse: Rimowa launches NFTs, Burberry's capsule collection on Minecraft and more*, "Vogue", 2022. https://vogue.sg/updates-from-fashion-metaverse/ retrieved on 13-08-2023.

Taobao "Metaverse Shopping" set to debut on China's mid-year e-commerce battle '618', "Dao Insight", 2022, https://daoinsights.com/news/taobao-metaverse-shopping-set-to-debut-on-chinas-mid-year-e-commerce-battle-618/, retrieved 26-03-2023.

TAKLE, Steeve. *Microsoft's Vision For The Metaverse, According To CEO Satya Nadella*, "Beyond Games", 2021, https://www.beyondgames.biz/17161/micro softs-vision-for-the-metaverse-according-to-ceo-satya-nadella/, retrieved on 21-02-2023

TEXTOR, C., *Gross domestic product (GDP) per capita in current prices in China from 1985 to 2022 with forecasts until 2028*, "Statista", 2023. https://www.statista.com/statistics/263775/gross-domestic-product-gdp-per-capita-in-china/ retrieved on 18-03ù-2023.

Téngxùn tóuzī yóuxì gōngsī yīlǎn: Quántóu 100% Epic 40% lán dòng 11.5%, 腾讯投资游戏公司一览：拳头*100% Epic 40%* 蓝洞*11.5%,,* (Overview on Tencent Investment in Gaming Companies: 100% of Quantou, 40% of Epic and 11.5% of Bluehole), Sina, 2020. https://tech.sina.cn/2020-08-11/detail-iivhvpwy0384112.d.html retrieved on 20-03-2023.

The 50th Statistical Report on China's Internet Development, CNNIC, 2022.

The Gaming and E-sports market in China, The Flanders Investment & Trade Shanghai, market survey 2021.

The Top 5 China NFT Marketplaces in 2022, "Enlybee", 2022. https://www.enlybee.com/the-top-5-nft-marketplaces-in-china/ retrieved on 04-05-2023.

THOMALA, Lai Lin. *Building the Chinese Metaverse, A Statista dossierplus on the virtual ambition and challenges behind the Great Firewall*, Statista, 2022

—, *Gaming in China – statistics & Facts*, Statista 2022, https://www.statista.com/topics/4642/gaming-in-china/#topicOverview, retrieved on 03-03-2023.

—, *Level of understanding of Metaverse in China 2021*, Statista 2022, https://www.statista.com/statistics/1287390/china-familiarity-with-metaverse/, retrieved on 17-04-2023.

—, *Market Share of Mobile Gaming Companies in China 2020*, Statista, 2022. https://www.statista.com/statistics/1034597/china-mobile-gaming-companies-market-share-by-mobile-game-revenue/ retrieved on 31-03-2023.

—, *"Monthly active users of Taobao app in China 2020-2022"*, Statista, 2023. https://www.statista.com/statistics/1327377/china-taobao-monthly-active-users/ retrieved 16/06/2023. retrieved on 16-06-2023.

—, *Leading internet companies in China as of 2022, based on market valuation*, Statista, 2023. https://www.statista.com/statistics/954867/china-leading-internet-companies-based-on-market-value/, retrieved on 16-03-2023.

—, *Reasons for Chinese internet users to be interested in virtual humans as of January 2022*, "Statista" 2023, https://www.statista.com/statistics/1311650/china-reasons-to-like-virtual-humans/ retrieved on 11-05-2023.

—, *Opinions on digital collectibles among respondents in China as of July 2022*, "Statista", 2022. https://www.statista.com/statistics/1327877/china-consumer-opinions-on-digital-collectibles/ retrieved on 22-03-2023.

Top 10 Chinese Metaverse firms with greatest potential, "ChinaDaily.com.cn", 2022, https://www.chinadaily.com.cn/a/202206/23/WS62b39a4ca310fd2b29e67f42.html, retrieved 21-03-2023.

Total Retail Sales of Consumer Goods in December, National Bureau of Statistics of China, 2023. http://www.stats.gov.cn/english/PressRelease/202301/t20230118_1892301.html retrieved on 18-03-2023.

TOTARO, Romina, *Metaverse fashion: Burberry creates a collection for Minecraft*, "Domus", 2022. https://www.domusweb.it/en/design/gallery/2022/11/10/burberry-presents-new-collection-in-the-minecraft-metaverse.html, retrieved on 13-08-2023.

The Metaverse in China: How Luxury Brands are Using Virtual Reality in Digital Marketing?, "Fashion China Agency", 2022. https://fashionchinaagency.com/the-metaverse-in-china-how-luxury-brands-are-using-virtual-reality-in-digital-marketing/ retrieved on 25-07-2023.

The secrets to the 5 trillion CNY Chinese Gen Z market: Douyin and Guochao, Daxue Consulting, 2022. https://daxueconsulting.com/gen-z-consumers-china/ retrieved on 18-06-2023.

"The State of Fashion 2022", *McKinsey&Company*, 2021.

The top 5 China NFT Marketplaces in 2022, "Enlybee", 2022.
https://www.enlybee.com/the-top-5-nft-marketplaces-in-china/, retrieved on
23-05-2023.

"Tiān māo shǒujiè yuán yǔzhòu yìshù zhǎn: Yī chǎng gānle gè gà de mài huò xiù" 天
猫首届元宇宙艺术展：一场尴了个尬的卖货秀 (*Tmall's First Metaverse Art Exhibition:
An Embarrassing Selling Show*), "Sina.com", 2021. http://vr.sina.cn
/news/2021-10-20/detail-iktzscyy0793755.d.html retrieved on 13-08-2023.

TIAN, Tian, "*Alibaba Launches 'Metaverse' For China's Black Friday*, "Radii China",
2021. https://radii.co/article/alibaba-launches-metaverse-for-chinas-black
-friday retrieved on 13-08-2023.

TONG, Antonia. "Non-fungible Token, Market Development, Trading Models, and
Impact in China", Asian Business Review, 2022, 12.1:, pp 7-16.

TUDOR-ACKROYD, Alison; YU, Ivy. *Alibaba Rolls Out Deeper Immersive Luxury
Shopping Experience In The Metaverse*, "Alizila", 2022. https://www.alizila.com
/alibaba-rolls-out-immersive-luxury-shopping-metaverse/ retrieved on
08-05-2023.

Understanding Chinese Millennials: Who Are They and What Do They Want?,
"ChoZan", 2022. https://chozan.co/blog/understanding-chinese-millennials/
#Early_Adopters_of_the_Metaverse retrieved on 28-05-2023.

Unleashing Creativity: Exploring Avatar Customization in the Metaverse, Edverse.
https://www.edverse.com/blog/exploring-avatar-customization-in-the-metave
rse retrieved on 21-04-2023.

*Virtual Reality Coexistence Blossoms on the Sea: The World's First Large-scale
Metaverse Digital Twin Show at the Same Frequency*, "Art China", 2022,
http://art.china.cn/txt/2022-09/17/content_42110766.shtml, retrieved on
26-04-2023.

*Walking the cyberspace: how luxury brands can leverage the Metaverse and NFTs
to win over China*, "Daxue Consulting", 2022, https://daxueconsulting.com
/luxury-brands-metaverse-and-nfts/, retrieved on 21-03-2023.

What is Virtual Reality (VR) and how does it work?, TeamViewer, https://www.teamviewer.com/en/info/what-is-virtual-reality-vr-and-how-does-it-work/. retrieved on 09-05-2023.

What is Branding in Marketing? "Oberlo", https://www.oberlo.com/ecommerce-wiki/branding, retrieved on 24-04-2023.

WILLIAMS, Gemma A., *Dior Enters the Metaverse with Customizable Avatars*, "JingDaily精奢", 2021. https://jingdaily.com/dior-metaverse-ready-player-me-china/, retrieved on 15-07-2023.

Xiāofèi jiàngjí? Zhōngguó jiāng dàidòng quánqiú shēchǐ pǐn shìchǎng 75%de zēngzhǎng, 消费降级？中国将带动全球奢侈品市场**75%**的增长 *(Consumption downgrade? China will drive 75% of global luxury market growth)*, "Sina.cn", 2018. https://finance.sina.com.cn/consume/xiaofei/2018-09-30/doc-ifxeuwwr9932834.shtml retrieved on 31-05-2023.

XIANG, Nina. "Parallel Metaverses, How the US, China and the rest of the world are shaping different virtual worlds", *Independently published*, 2022.

XU, Tony. "*Bytedance rebrands Huoshan to support Douyin*", Technode, 2020 https://technode.com/2020/01/09/bytedance-rebrands-huoshan-to-support-douyin/ retrieved on 29-03-2023.

"*Yònghù héxīn, chuàngzuò zhìshàng: xiāofèi yuányǔzhòu sùzào shāngyè xīn móxíng*" 用户核心，创作至上 消费元宇宙塑造商业新模型 (Core of consumers, creation comes first: The Metaverse consumerism creates new business models), 德勤 (Deloitte) whitepaper, 2022.

YE, Josh. *TikTok owner ByteDance boosts investment in Roblox-like video game platform in race with Tencent to create the Metaverse*, "South China Morning Post, 2021. https://www.scmp.com/tech/tech-trends/article/3130476/tiktok-owner-bytedance-boosts-investment-roblox-video-game, retrieved on 29-03-2023.

YU, Ivy, *Alibaba Embraces Metaverse with Extender Reality, 3D and Virtual Influencers during 11.11*, "Alizila", 2022. https://www.alizila.com/alibaba-embraces-metaverse-with-extended-reality-3d-and-virtual-influencers-during-11-11/ retrieved 7-05-2022.

*"Yuán yǔzhòu píngtái:The Sandbox shā hé"*元宇宙平台：*The Sandbox*沙盒 (*Metaverse Platform: The Sandbox*), 元宇宙之门 (Gate to the Metaverse) 2022, https://wwwx168.cn/metaverse-platform-the-sandbox.html , retrieved on 07-03-2023.

ZHANG, Guihua. CAO, Junwei. DONG, Liu. QI, Jie. Popularity of the metaverse: Embodied social presence theory perspective. *Frontiers in Psychology*, 13, 2022, pp. 01-13

ZHANG, Tao; LI, Gang; TAYI, Giri Kumar. A strategic analysis of virtual showrooms deployment in online retail platforms. *Omega: The International Journal of Management Science*, 117, 2023, pp. 1-12.

Zhēn de láile! Táobǎo tuīchū VR *gòuwù chǎnpǐn Buy+*, " 真的来了！淘宝推出*VR*购物产品*Buy＋*, (It's really here! Taobao launched the VR application for buying products Buy+) "Sina.com", 2016. http://tech.sina.com.cn/it/2016-04-01/docifxqxcn r5157233.shtml retrieved on 09-05-2023.

ZHEN, Ruonan, *How These 7 Luxury Brands Build Hype for Chinese Valentine's Day*, "JingDaily 精奢", 2019. https://jingdaily.com/7-luxury-brands-chinese-valentines-day/, retrieved on 15-07-2023.

Zhōngguó xūnǐ ǒuxiàng hángyè yán jiù bàogào, 中国虚拟偶像行业研究报告 (*Report On The Virtual Idol Industry in China*), "iResearch", 2022. https://report.iresearch.cn/report_pdf.aspx?id=4071 retrieved on 12-05-2023.

ZHOU, Jing 周晶, LIU, Mingxi 刘鸣曦, "Rúhé kàndài yuán yǔzhòu? Zhuānjiā: Bǎochí hàoqí xīn de tóngshí jǐngtì pàomò hé hūyou" 如何看待元宇宙？专家：保持好奇心的同时警惕泡沫和忽悠 (How to view the Metaverse? Expert: Be wary of bubbles while staying curious), *Renmin Wang*, 2021, http://www.people.com.cn/n1/2021/1124/c32306-32290518.html, retrieved on 23-02-2023

ZHOU, May. *China's Gen Z moves metaverse to the fore*, China Daily, 2023. https://global.chinadaily.com.cn/a/202203/21/WS6237cf8ea310fd2b29e521af.html, retrieved on 13-05-2023.

ZHU, Zhu 朱珠,YU, Yue 于越, *Téngxùn tuīchū "luóbù lè sī" yuán yǔzhòu sài dào bùjú huǒrè*, 腾讯推出《罗布乐思》元宇宙赛道布局火热 (Tencent launched "Roblox" and the Metaverse track gets hot), 国海证券股份有限公司, 2021. https://pdf.dfcfw.com/pdf/H3_AP202107191504708224_1.pdf?1626687549000.pdf retrieved on 25-03-2023.