



Metaverse and the Evolution of Food and Retail Industry*

Seong-Soo CHA¹

1. First and Corresponding Author Professor, Department of Food Science and Service, Eulji University, Korea.
E-mail: sscha@eulji.ac.kr

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Abstract

Purpose: This study aims to examine the opportunities in the food industry in the context of non-fungible tokens (NFTs) and the metaverse. The metaverse expands offline experiences into a virtual space and provides users with the advantage of overcoming the limitations of physical space. **Research design, data and methodology:** With the development of various contents based on advanced technology, the metaverse is becoming popular among the MZ generation (comprising millennials and Gen Zs), who are skilled at navigating digital platforms. Moreover, the previously entertainment game focused service has expanded to the business field after COVID-19; activities on the metaverse are now making space for economic value creation. I examined the recent global trends in the context of NFTs and the metaverse as well as the existing cases in Korea. **Results:** Globally, gaming and performance platforms such as Roblox, Fortnite etc. are still concentrated in the entertainment industry. However, as shown by ZEPETO and ifland in Korea there are many opportunities in the retail and food industries. **Conclusions:** We analyzed the ecosystems of the retail and food and beverage sectors, where the metaverse will be useful in the future, and have suggested the implications of the opportunities provided by the metaverse.

Keywords: Metaverse, AI, Food, Retail, Cultural Contents

Major classifications: Restaurant Marketing, Other Hospitality Related Areas.

1. Introduction

1.1. NFT (Non-Fungible Token)

As one of the blockchain technologies, NFT (Non-Fungible Token) was applied to the digital economy and virtual economy, a new momentum was created. NFT is a smart contract technology with the meaning of a non-fungible token, and it enables virtual goods to have physical entities. Substitutable in the real world means that even if you exchange 100 dollar bills in your hand and 100 dollar bills of another person, the value is the same, and there are many physical entities with the same value, such as gold, checks, and gift certificates. Conversely, irreplaceable means that it is unique and there is no

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substitute for it (Kong, & Lin, 2021). No matter how many copies there are, the value of the Mona Lisa painting in the Louvre is not diminished, because there is only one irreplaceable original. Because we can distinguish the work and third parties can agree and endorse it. A finite thing that can accumulate value and can later increase in value is called an asset.

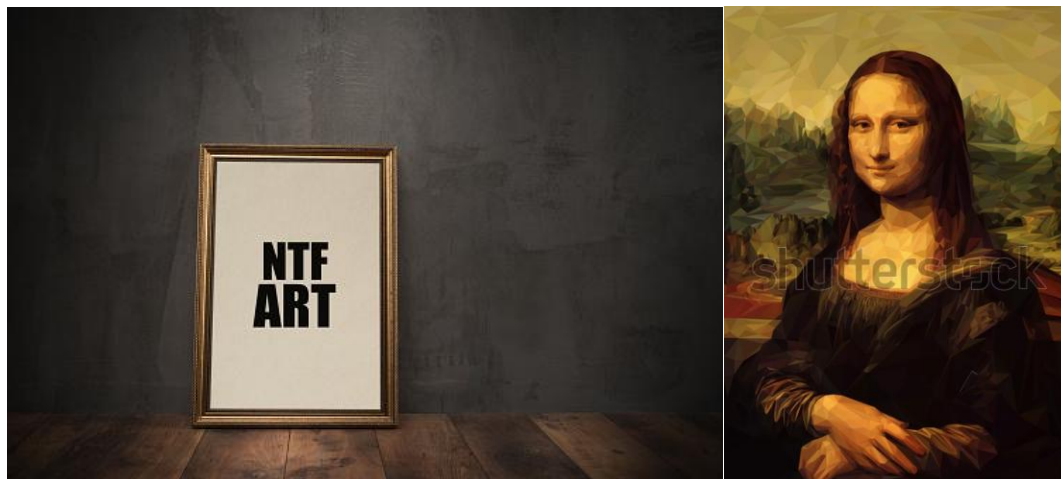


Figure 1: NFT art (Unsplash), Mona Lisa (Shutterstock)

Even if digital is infinitely copied and transmitted, the marginal cost is almost zero. Even if you copy your digital photos or sound files millions of times or send them to millions of people, the files you have remain the same, and they are exactly the same as the copied or transmitted files. In the meantime, digital has digitized everything in the world by taking advantage of this property. However, the moment NFT is applied, it has properties that digital did not have. You can make copies of digital files that can be copied indefinitely, but you can restrict the existence of only one or a finite number of originals.

Furthermore, it can prove the authenticity of a finite file, and it is possible to prove who owns it by recording it in the ledger of the block chain. This is why blockchain virtual real estate games like *Earth2* is so popular. That is a service that maps each block to NFT based on map data of the real world, and its scale is rapidly growing centering on its own cryptocurrency (Wilson, Karg, & Ghaderi, 2021). By using blockchain technology on virtual real estate mapped with real location information, it is possible to prove that the virtual real estate is the only and real asset, which aroused the desire to become the owner of the finite land. It is for the purpose of investing and owning now, but I think that with enough time, it may become possible to create a variety of businesses using those assets. The use of NFT has sparked business within the metaverse. So, how is business happening within the metaverse (Shackelford, & Myers, 2017).

1.2. The rise of the metaverse

The metaverse first appeared in a novel by Neil Stevenson in 1992. It meant another real world where you were connected as an avatar to replace yourself in virtual reality. It is a digitally realized world that allows real-time spatiality, immersion, and real-time interaction. In that world, users exert different powers and abilities from the real world, and have a new identity. The current metaverse has not yet reached the level of a real world. If there is an imagination that the film shows and sympathizes with, the difference of metaverse is that it is directly experienced and interacted with. Therefore, it is technically more difficult to implement and to direct like a movie, but it is emerging rapidly as a new trend full of potential (Ondrejka, 2004).

The reason for the rise of Metaverse is the Corona pandemic. With social distancing and freedom of movement and gatherings starting to be restricted, everything is converging into a digital-based non-face-to-face lifestyle. However, this was only an acceleration of the pace, and was already in the direction of progress. So, what caused the current metaverse phenomenon? (Dionisio, & Gilbert, 2013).

First, more than 60% of the world's population uses the Internet, and 92.8% of them are always connected to the Internet through a smartphone. The metaverse is a world connected to the Internet. Without the Internet, it cannot exist, nor can it be

implemented or accessed. As more than half of the population was always connected to the Internet, critical usage began to be created in the metaverse.



Figure 2: Academic Festival using Metaverse (Department of Food Technology and Service, Eulji University)

Second, the rapid improvement of computing performance continues. In particular, the development of GPU (Graphics Processing Unit) is occurring exponentially, which is closely intertwined with the development of various technologies. The process of mining that played an important role in the cryptocurrency craze and block chain trend that started with Bitcoin was a graphics card equipped with a huge amount of GPUs, and at the same time, a huge performance improvement is taking place. At the same time, artificial intelligence and deep learning machine learning that appeared during the 'AlphaGo vs. Lee Sedol' Go match are being processed based on the GPU.

Naturally, tremendous performance is required, and the performance of the GPU is developing dramatically along with algorithm research. The metaverse is a digitally embodied world, and it must be virtualized graphically. In the end, the performance of the graphics card becomes an important factor in determining the quality and immersion of the metaverse. The development of GPU, which has been driven by the development of blockchain and artificial intelligence, inevitably becomes a very important tipping point in the metaverse (Liu et al., 2009).

2. The value of metaverse in food industry

2.1. Metaverse application in hospitality industry

In the field of culture and art, it will be very useful as a tool to enhance the interaction with the audience, such as exhibitions and performances, while maximizing profits by the influx of audiences without spatial and temporal constraints. In the retail sector, it will overcome the limitations of one-way communication between traditional retail stores such as department stores and online shopping malls, and provide opportunities for immersive promotion and organic marketing. As an 'advertising marketing channel', collaboration cases between the Metaverse platform and various brands are increasing (Hendaoui, Limayem, & Thompson, 2008). BGF Retail's CU convenience store built a store in ZEPETO to provide services that are linked to the actual store, and luxury fashion brand GUCCI created advertisements and branded objects on the ZEPETO platform to create a basement for revenue generation. The entertainment industry can diversify the interactivity between celebrities and fans, a major asset, and there is a way to communicate with fans using celebrity avatars and commercialize related products using partnerships with companies. XR (Extended Reality), a core technology of metaverse technology, is increasing interest and demand for XR, which implements remote communication similar to reality, as digital transformation and non-face-to-face online services are rapidly expanding after Covid 19. In order to secure leadership in

the XR industry, global ICT companies such as Microsoft, Meta (Facebook), and Apple have made continuous investments in the development of XR devices and platforms, and are showing tangible results recently (Nam, 2021).

2.2. Cases applied to food and retail contents

It can be used to provide product experience information for online marketing. The share of U.S. retailers willing to adopt AR and VR for marketing purposes increased from 8% in January 2020 to 21% in June 2020. Room Decorator, launched by Amazon, provides convenience to consumers by allowing users to simulate the arrangement of furniture and ornaments in a room. VR provides a virtual real estate tour service that is similarly implemented from the surrounding environment such as roads, parking lots, and trees to the interior and the view through the window (Xue, Parker, & Hart, 2020).

It is being used for cultural content services such as non-face-to-face performances, exhibitions, movies, travel, social and travel. Burning Man, a global large-scale exhibition event, was first held in a VR space in 2020, and various performances and exhibitions were held in several virtual spaces. Facebook recently changed its company name to “Meta”. They released a beta version of Horizon, a novel VR platform that allows you to enjoy conversations, meetings, and games with people embodied as avatars in a virtual space, and to design your own virtual space where you want to stay. Film production company Transitional Forms has produced films with animated characters in which the audience appears in the film. There, according to the type of AI learning, the characters' personalities change and an interactive VR movie was produced in which a new movie story was created (Aleksandra, Ivona, & Antonija, 2021).

So, what is the relationship between Korea's food service industry and Metaverse? Marketing of ‘Metaverse’ of food and restaurant companies is an important means to increase brand awareness and intimacy targeting the 1020 ‘Generation Z’, who are familiar with the digital environment and will grow into a core consumer group. Food and restaurant companies are paying attention to the potential of Metaverse and are actively marketing the Metaverse to Generation Z.

2.2.1. Metaverse with food service companies

Dongwon F&B will hold a fan meeting of ‘Team Chichi’, a project group formed to promote the Dongwon Tuna brand, on the metaverse platform ‘Ifland’. Baskin Robbins, an ice cream brand affiliated with SPC, has built a separate world map ‘Barra Factory’ on the metaverse platform ‘ZEPETO’ operated by Naver Jet. Unlike consumer goods brands that usually open a virtual space on the world map operated by ZEPETO, Baskin Robbins focused on providing a multifaceted experience of the brand by operating the map independently. In particular, at the kiosk in the World Map, a next-generation commerce model was also introduced, such as selling discount coupons or mobile vouchers that can be used in actual online and offline stores. Cafe brands Starbucks and Ediya Coffee are operating virtual stores in ‘Santa Square’ and ‘Four Seasons Cafe’, respectively, on ZEPETO's winter-limited maps. Nonghyup-affiliated chicken restaurant Dorae-orae has created a virtual space where you can experience the store by implementing the hall and kitchen of the offline store on the ZEPETO World Map. Lotte Food and Heineken Korea held official events such as interviews and hiring on Metaverse. Lotte Food held the 20th ‘Hidden Supporters’, a marketer selection program for college students, mainly of Generation Z, on the metaverse platform ‘Gather Town’. Heineken held a recruitment briefing session on Metaverse to communicate more closely with Gen Z job seekers. An official from Heineken said, “It was a response that about 200 participants met as avatars, freely asked questions, and enjoyed the recruitment briefing while visiting various spaces” (Foodnews, 2021).

2.2.2. Metaverse with convenience store

Convenience store 7-Eleven will conduct a job interview for ‘new employees in the second half of 2021’ using the metaverse platform ‘Gather Town’. Gather Town is a metaverse platform with a new concept that seems to combine video conference with a retro 2D game, where you can meet and talk and work in a virtual space. Interviewers who pass the document screening will enter the Metaverse Recruitment Interview Hall and, when it is their turn, move their avatars to enter the interview room and have a video interview. GS25, a convenience store operated by GS Retail, held the 27th inauguration ceremony of the college student marketing program ‘Young Marketer’ using the metaverse platform Gather Town on the 27th of last month. Last year, the Young Marketer program was temporarily suspended for safety from COVID-19, but the program was re-operated due to continuous requests from students and the recent strengthening of the metaverse platform use method. Previously, CU opened the industry's first virtual reality convenience store CU ZEPETO Hangang in August in partnership with Naver Jet, which operates the metaverse platform ‘ZEPETO’. Inside the ZEPETO Hangang Branch, various CU's popular products were displayed just like the actual convenience stores. It is a strategy to increase brand familiarity by allowing MZ generation users who are accustomed to digital media to experience CU products

and services sold at actual stores online as well. Thanks to the popularity of the ZEPETO Hangang branch, CU opened the second ZEPETO store, 'CU ZEPETO Classroom Store,' last month. The ZEPETO classroom canteen is a cafeteria-type store in the school that is familiar to the MZ generation. Taking advantage of the spatial characteristics of vending machines frequently used, CU installed a smart vending machine that is currently being promoted (Food Service Economy, 2021).

3. New business opportunities and prospects for restaurant industry

Metaverse is being serviced in the form of games and social media. Traditionally, content sales (including subscription-type services) are the main sources of revenue for games and advertisements for social media. A new business model emerged with the advent of the metaverse service. (Seok, 2021).

First, since users have the right to create, sell, and distribute content, the operator takes the in-game content transaction fee. Users are already making and selling mini-games, as well as in-game skins for avatars, and the fact that they can turn sales into cash is a factor in expanding user participation. In other words, Roblox, which embraces the metaverse, has a positive effect on the emergence of active prosumers.

Second, it is a method to secure brokerage fees by providing multiple types of media at the same time by loading another type of media platform within the platform. In other words, it is a business model in which the right to use various video media services is sold to users, and the revenue generated from this is divided at a certain rate with the content producer. Fortnite sold tickets to the first screening of BTS' new song, by selling three types of this mote (a form in which the avatar can perform the choreography after taking a part of the choreography), it has contributed to not only increasing Fortnite sales but also creating new sales for BTS and the entertainment agencies.

Third, marketing fees. In general, social services have a business model of increasing digital advertising sales based on subscribers. In ZEPETO, Korea's representative social media-based metaverse service, digital advertisement sales are the main revenue, but there is also a method of acquiring a store commission by inducing global companies to enter the store in a virtual space. For example, Nike, Converse, and Gucci are entering stores within the ZEPETO application and are supporting various activities such as introducing various new products as well as selling skins for avatars.

Fourth, it is a form of receiving a monthly subscription fee through a lifelog service for fan activities and an AI-based virtual currency service. Metaverse marketing is expected to completely change the paradigm of the existing one-way marketing in the retail industry.

In the future, food and restaurant companies, including distribution companies, will become common as non-face-to-face services increase rapidly due to COVID-19 (Lee et al., 2020; Cha, & Lee, 2021; Cha, Hong, & Shin, 2021). Food and restaurant companies will widely introduce non-face-to-face services such as restaurant robot services in consideration of hygiene and safety (Cha, 2020), and strategies should be devised to reach consumers by utilizing virtual spaces such as metaverse.

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