Technology's Role in Affecting Behavior to Leading the Metaverse

Wannattha Khanitthabud[1] and Kritsana Lakkhongkha[2*]

[1] Faculty of Business Administration, Panyapiwat Institute of Management, Thailand.

[2] Faculty of Business Administration, Panyapiwat Institute of Management, Thailand.

[*] Corresponding Author

E-mail: wannatthakha@pim.ac.th, kritsanalak@pim.ac.th

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Abstract

Today, studying consumer behavior entails more than just getting to know people. However, it must investigate the surrounding environment, which is linked by various technologies. There will be many benefits such as the high-speed Internet connection. Until the term "Internet of Things" or IoT was coined, and it was developed to the next level that is known as technology that understands human behavior, also known as Internet of Behavior (IoB), and the development of technology, whether it is artificial intelligence (AI) technology. Consumer behavior will undoubtedly be influenced by virtual reality (VR) and augmented reality (AR) technologies. As a result, it is not only technology that is advancing at a rapid pace these days. In the future, the combination of all technologies to the internet will be faster, resulting in the formation of a virtual world community or called “Metaverse” which is an innovation that creates a simulated world and combines it with a real-world environment where people can enter this virtual world by taking objects from their surroundings to become inextricably linked as one

Keywords: Technology role, Artificial Intelligence, Metaverse

Introduction

It is important and plays a very crucial role in doing business in today's era. Internet technology is the interface that makes things happen which includes the convenience that happens a lot and makes them play a role in the daily life of consumers. Also, the development of technologies such as artificial intelligence (AI), virtual reality (VR) and augmented reality (AR) technologies will inevitably affect consumer behavior in the future. One of the key factors in doing business is knowing how to keep up with changing consumer behavior. One of the important factors affecting the change in consumer behavior to be discussed is the “age factor”. This is because age is a factor indicating the maturity of an individual. Also, it indicates the ability to understand content and information through different life experiences. In addition, age also affects the thoughts, experiences, beliefs, interests, attitudes and behaviors of consumers. Also, the advancement of information technology, causing the trend of digital transformation. Moreover, using information and communication technology is increasing in daily life and affecting the changing behavior of consumers today.

As a result, consumer behavior in society at the time. The processes and activities in which a person is involved, as well as the general public's character, way of life, and activities in daily life or the majority of people in society, In terms of spending daily life through the use of various products and services to satisfy needs and desires, choosing, buying, using, evaluating to be pleased with the advances in information and

communication technology that are generating new economic value. As a result of the link between technology. Various technologies are being harmonized and become a change in consumer behavior in the digital era and consumer segmentation in the digital era, which is currently causing changes in both economic and social aspects. This gave rise to the concept of categorizing consumers in the digital age into two groups: There are two types of digital immigrants: 1) digital natives and 2) digital immigrants (Ofer Zur & Azzia Walker, 2020).

Objective

To investigate the role of technology in the formation of a virtual community (Metaverse)

Research methodology

It is accomplished by studying and reviewing literature and content from a variety of sources which is including various studies in order to summarize the issues and synthesize the role of technology in the development of Metaverse technology

Research Contribution

Readers will be able to bring knowledge of various roles in technology to guideline in the research teaching and also can be preparing for the future changes that will have a direct impact on consumer behavior.

Consumer segmentation in the digital era

At the moment, there is a lot to learn about consumer segmentation, which summarizes the division of consumers into five generations. Firstly, Gen GI. Over the age of 75. Secondly, it can be called Baby boomers aged 57 to 75. Thirdly, Generation X (aged 42-56). The next one can be called gen Y which is between the ages of 24-41, while Gen Z is under the age of 23, according to scholars who have defined the age group of people who have access to computers and various digital technologies, such as Born Digital. Digital Youth, Millennials, Net Generation, Screenagers, Google Generation, and Generation Y are some of the terms used to describe this generation Y, Generation Z, Internet Generation or I Generation (Herther, 2009).

The behavior of both groups is digital natives and Immigrants, who are people born in the digital age, according to the concept of dividing consumers in the digital era into two groups: 1) Digital Natives and 2) Digital Immigrants. Both groups are digital by comfortably using computers or any other device that can connect to the internet to perform daily life routines such as product research, complete their homework, game play, and social media communication. Moreover, digital immigrants are people who were born before the digital age but they have a strong interest and passion for information and communication technology; as a result, they try to learn and attempt to adapt to technology. Also, there are still some behaviors that have not been addressed.

Figure 1 Consumer segmentation in the digital era

Source: https://www.brandbuffet.in.th/2019/11/thai-consumer-consumption-media-content-and-platforms-in-2019/

The definitions of Digital Natives and Digital Immigrants remain merely conceptual. It aids in understanding the differences between people who are at ease with technology. As a result, it is necessary to investigate the origins of the "digital era" in order to understand who "digital people" and "digital immigrants", as well as consumer segmentation in the digital era, which is a technologically advanced era. At the moment, information and communication technology is causing changes both economically and socially. This has given rise to the concept of categorizing consumers in the digital era into two groups: 1) Digital Natives and 2) Digital Immigrants, with more information below.

1. Digital people by birth are divided into 3 main groups as follows:

1) Avoiders, despite being born in the digital age. However, it is unrelated to digital technology. In addition to not being of the same generation. They are uninterested in Facebook, messaging technology or a variety of mobile devices. This group makes use of mobile phones. However, there is no email, Facebook, Twitter account, and no internet access at home. This group of people may have older phones that are not capable of sending messages.

2) Minimalists: This group acknowledges that technology is an integral part of today's world. Also, they try to engage with it as little as possible. For example, they will only use Google to find information. Moreover, they only buy things online if you can't do it in a physical store. Despite the fact that this group has a Facebook page. However, they only use it once a day or every few days. They'll get directions by asking friends instead of searching for a Google map, even if they have a GPS system.

3) Participant Enthusiasm, This is a sizable group of digital natives. They have a lot of fun and are very successful with technology and equipment. These people spend their days on Facebook, watching TV or movies online, surfing the web. They spend the majority of their time online. When this group of people needs to know something such as translating a language or getting directions. They turn to Google to reach. This group, they need to use online tools and messaging. Due to the fact that they rarely use their phones but prefer instant communication through social media. Also, this demographic owns a smartphone or an iPad for constant web access. It's also enjoyable to use technology and watch the hunt evolve.

For newcomers to the digital world, It is further subdivided into groups similar to digital natives Immigrants to the world have a wide range of attitudes and abilities in digital technology.

2. Immigrants to the digital world are classified into three major groups:

1) Avoiders are people who prefer the old way of life. They do not want to use technology. They try to use the least amount of technology. This group almost always has a home phone. There is no mobile phone or smartphone, no email account, no social networks such as Twitter or Facebook.

2) Difficult adopters, this group understands that technology is an integral part of today's world and makes an effort to participate in the use of technology. However, there was still a sense of involuntary alienation. This group of hesitant users is very diverse. Despite the fact that this group has a mobile phone. However, they do not send messages. They occasionally use Google and do not have a Facebook account. This group checks email on a regular basis and may use online banking. They are very cautious when they need to use technology.

3) Enthusiastic Adopters, they are digital immigrants who have the potential to be digital natives because of the ease with which technology can be used. This group will be technologically capable and interested. They could be executives with technological knowledge or a businessman who embraces technology and appreciates internet culture. It is a group that values technology and strives to maximize its use. This group's members have Facebook accounts. It's possible that you'll realize it's the best way to interact with their child or an old friend by utilizing popular media in the digital technology era. They also check their email on a regular basis and are enthusiastic about technological advancements and new equipment

Digital technology plays a role and is linked to consumer behavior.

The rapid advancement of information and communication technology is generating new economic value. It is from the integration of technologies using 5G as a link and synchronization with various technologies. Also, it will result in a shift in consumer behavior in the digital era. Consumer behavior refers to the actions of people in society at the time. The processes and daily activities of people is involved, as well as the general public's character, way of life, and activities in daily life or the majority of people in society, choosing, buying, using, and evaluating in terms of spending daily life through the use of various products and services to satisfy needs and satisfaction

Consumer purchasing habits have shifted dramatically over the years. This is because it will be replaced by new innovative technologies and replace older technologies. For example, computers will be replaced by tablets. The proliferation of high-speed Internet and Wi-Fi signals, as well as the use of smartphone applications which influence the telecommunications system. The music and film industries are affected by program downloads. The rate of economic growth is determined by the invention of important technologies. Each technological advancement causes a significant shift in lifestyle. When new technologies are developed, they will eventually replace older, obsolete technologies. Consumers are eventually compelled to adapt to technological advancements. Music, for example, was once loaded on CDs and listened to by played on CD players. However, the music producer will provide the music online platform nowadays. Also, customers do

not have to leave their homes to make the purchase (Ajcharee Limpamon, 2015). It is clear that technology and innovation have a massive and rapid impact on consumer behavior. We can connect to the rest of the world in one seconds. Unrestricted access to consumer information. As a result, marketing must adapt to and make the understanding in terms of digital technology, which influences consumer behavior.

As technology advances, businesses and citizens must prepare to adapt to the following digital technologies:

1. Internet technology
2. Internet of Things (IoT) technology
3. Technology that understands human behavior (IoB)
4. Artificial Intelligence (AI) Technology
5. Virtual Reality (VR) Technology
6. Augmented Reality (AR)
7. Leading to Metaverse Technology

Internet technology

The Internet is a significant factor, resulting in a factor that drives 5G (Fifth Generation of Mobile Communications Technology: 5G) technology from its inception until it forms a communication technology life cycle which will be developed and implemented in the first phase. In the second phase, there will be a significant increase in usage and then apply it widely to the most advanced level. Then, as the number of users decreases, it will become obsolete. Some of them may change to other technologies that provide better features and meet the needs of their users. This could be analogous to the steadily declining number of 2G and 3G mobile phone users. While the number of 4G users tends to continue to grow. It is expected to grow at its fastest in 2020-2021. (Therdpong Daengsi and Phisit Pornpongttechavanich, 2019). This implies that 5G cellular systems should be available in the telecom market within that time frame.

The introduction of 5G technology, which will replace 4G, will result in three outcomes:

1. The Internet's speed will be increased, with 5G speeds 20 times faster than 4G, bringing the clarity of streaming video playback up to 4K or 8K, as well as the use of Augmented Reality (AR) or Virtual Reality (VR) technology smoothly.

2. A command response rate that is up to 30 times faster than 4G. This feature will have a significant impact on human life forms such as self-driving cars, remote surgery, or smart city with full remote control services

3. It is compatible with a large number of Internet-connected devices. It will support up to one million Internet of Things (IoT) devices per square kilometer. This is ten times more than 4G technology. It makes it simple to connect smart devices and sensors which make them work efficiently.

Internet of Things (IoT) technology

The Internet of Things (IoT) refers to a communication network that connects communication devices, electrical appliances, vehicles, buildings, structures, or other objects through the use of embedded electronic systems sensor and Interconnection device software. This will enable all devices and objects to store and exchange data with one another (ITU, 2013). The interconnected Internet of things can connect millions of objects, causing significant structural changes. In the Internet of Things, "Things" can refer to anything from communication devices to electrical appliances like air conditioners, fans, refrigerators, rice cookers, aircraft systems, solar panels, water supply valves, and small circuit boards embedded in livestock.

Internet of Behaviors (IoB)

This technology collects and manages information gathered by the IoT (Internet of Things) as well as information gathered from other sources such as social media, travel information, facial recognition data, and converts that information into a body of knowledge of behavioral events such as the purchase of goods and services. It is a data science/analytics-based analysis, modern technology and behavioral science knowledge resulting in the stimulation of new behaviors. While IoT is the connecting and forwarding of user data, Internet of Behaviors (IoB) is the bringing of data from both IoT devices and digital platforms social media, GPS or government disclosure must be processed in order for service users who have set goals to make decisions. An IoT smart watch, for example, collects heart rate data, the user's steps and sleep patterns are tracked. The data is processed by IoB and they can give advice to the user on what behaviors to engage in for better health based on the user's goals.

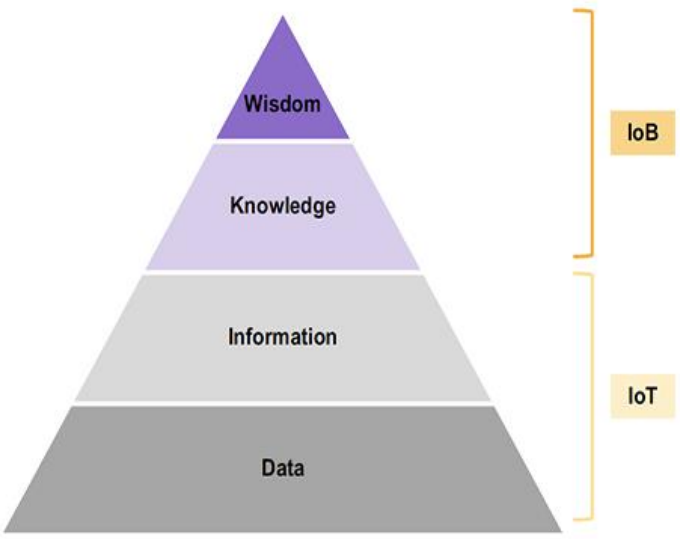

Figure 2 Demonstrating the relationship of IoT and IoB

Source: https://www.marketplus.in.th/content/detail.php?id=8681

Artificial Intelligence - AI

Artificial Intelligence (AI) is defined as a machine with the capability of understanding. It picks up skills like perception, learning, reasoning, and problem solving. Artificial Intelligence refers to machines that can perform these tasks (AI).

It can be said that AI was born when machines have the ability to learn. AI is classified into levels based on its ability or intelligence. It is determined by comparing the AI's reasoning, speaking, and attitude abilities to those of humans. AI is divided into three levels based on ability or intelligence, which are as follows:

1. Narrow AI or Weak AI which is an AI that is more specialized than humans. This is the origin of the term Narrow, which refers to an AI that excels in narrow or specialized areas. AI-assisted robotic surgery, for example, which may be more specialized in surgery than a doctor. It is undeniable that this type of AI cannot cook, sing, or do anything. This AI must only help in surgery. Nowadays, AI research results are still at this level.

2. General AI is an artificial intelligence that has the same capabilities as humans. It can do everything as humans and perform at a comparable level.

3. Strong Artificial Intelligence is a type of AI that possesses beyond superhuman abilities. As we can be seen, current human science is only at the start of AI.

Virtual Reality - VR

Virtual reality (Augmented Reality) or AR is a new technology that combines the real world with the virtual world through a device such as webcam, mobile camera, computer, combined with the use of various software, allowing us to see images that look like objects such as people, animals, things. It is displayed on the screen as 3D objects above the actual surface. It is changing the face of advertising media on the Internet step into the new thrill of having product images floating off the computer screen. This is a change in the face of modern media, just as when the Internet was born in the world. If the media is like a “box” then AR is to bounce out into a new world outside the box that creates excitement in the form of Interactive Media.

Augmented Reality - AR

Augmented Reality (AR) is a technology that uses a camera to project virtual images, which are 3D images that have been simulated into the real world. it can look directly through the camera and use processing to make objects overlap into the same image. It is a similar technology, the term "AR" is frequently used in conjunction with the term "VR." The difference is that the nature of AR technology is to attempt to be a part of the user's environment, whereas Virtual Reality (VR) attempts to create a new virtual environment in order to disconnect the user from the real world. This virtual environment can have both visual and auditory components and it may resemble or be completely different from reality

The use of VR technology necessitates the use of a specific device, the VR Headset, to access the virtual world created by computers and accessible via accessories such as the Oculus Rift and PlayStation VR Augmented Reality (AR) has been in development since 2010 and it has continued to improve its stability, with AR now being visible in a variety of tasks such as Pokémon Go.

Mixed Reality - MR

This MR technology is a hybrid of real-world and digital elements. Reality Blended Using next-generation touch and visualization technology, we can interact with objects and environments in both the real and virtual worlds. Mixed Reality (MR) is an extension of AR and VR that combines their strengths. As a result, the concept is similar to that of augmented reality, which is to bring the digital and real worlds together. However, by wearing glasses with MR lenses, we can see virtual images of objects in real space in 3D and Real Time, allowing us to respond to what we see immediately.

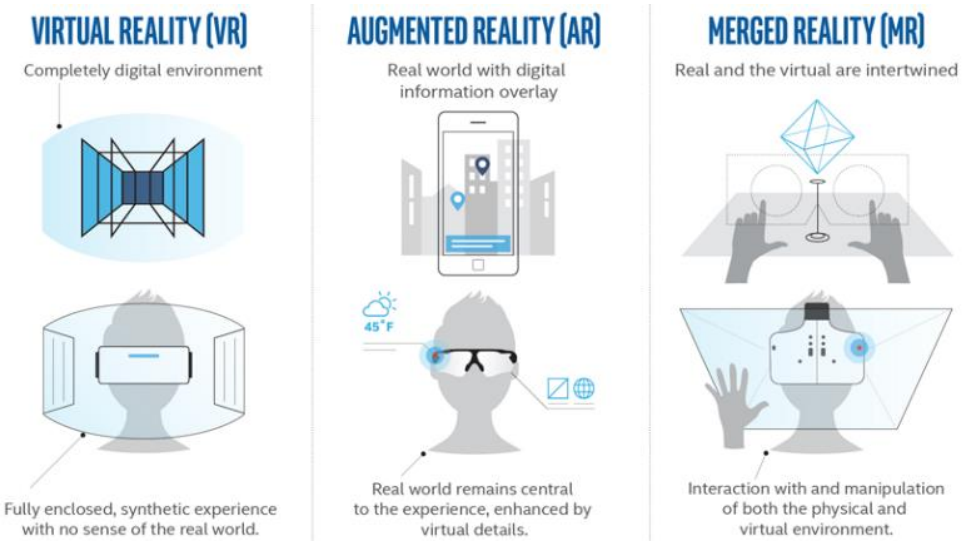

Figure 3 Virtual world technology steps into the real world VR /AR /MR.

Source: https://img.online-station.net/content/2018/1004/gallery/1538651339.jpg

The implementing and Leading the World of the Metaverse

Metaverse, with technology that plays a greater role in consumer behavior and announcing Facebook's vision of transforming itself from a social media company to a current company, is now becoming more and more talked about in the tech world, especially since Metaverse is just a preliminary idea. However, the goal is to create a 3D virtual world that combines Virtual Reality (VR) and Augmented Reality (AR) or other technologies. Metaverse will contribute to the creation of a new world ecosystem, a virtual world that will add value from interactions between humans who enter this virtual world. With an increasing number of users, parallel manufacturers and developers will see numerous new business opportunities and will innovate in areas such as global financial system expansion, DeFi, business development, digital real estate, and creating new forms of recreation for virtual people. That means it could be faster in 5 years. Our contact will be more frequent. We will be able to teleport to various locations in the Metaverse world to meet other people.

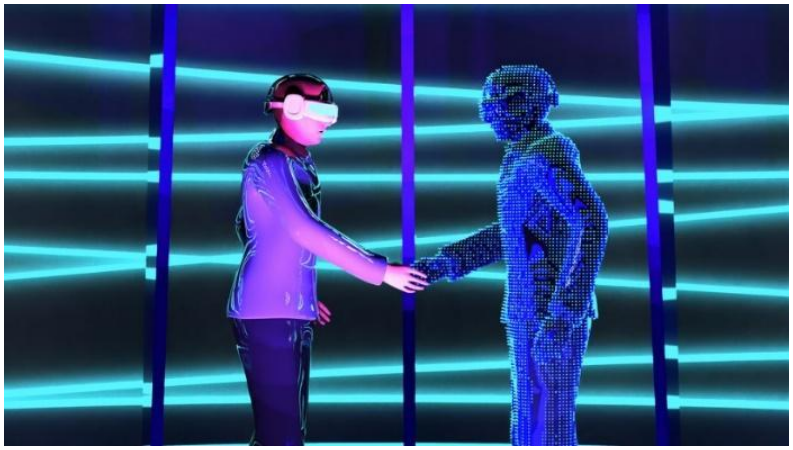

Figure 4 Technology that affects consumer behavior in the future.

Source: https://motiska.id/2507/cara-main-metaverse/

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