2021 WHITE PAPER ON KOREAN GAMES

SUMMARY

2021 WHITE PAPER ON KOREAN GAMES

SUMMARY

Introduction

In 2020, the domestic gaming market was worth 18.8855 trillion KRW, reflecting a 21.3% increase from 15.575 trillion KRW in 2019. The domestic gaming industry has steadily grown over the last 10 years, from 2011 to 2020, with an average annual growth rate of 9.8%. Though the market size decreased by 0.3% in 2013, it has been increasing since then.

As users move on to mobile games, which can be easily enjoyed anytime and anywhere, the mobile platform has emerged as the core platform. Accordingly, since 2017, the scale of the mobile gaming market has surpassed the PC gaming market. Mobile gaming market sales amounted to 10.8311 trillion KRW in 2020, surpassing 10 trillion won for the first time, and covering 57.4% of the total gaming industry sales. In 2020, PC gaming sales amounted to 4.9012 trillion KRW, making up 26.0% of the share of the total gaming industry. Meanwhile, sales from PC bangs reached 1.797 trillion KRW, or 9.5% of the market. Console gaming sales enjoyed a 4.5% share in 2019 before increasing to 5.8% in 2020, with a sales volume worth 1.925 trillion KRW. Console gaming sales increased 57.3% from the previous year, showing the highest growth rate, while mobile games also recorded a remarkable growth rate of 39.9%. On the other hand, due to the impact of COVID-19, the sales of game circulation businesses, such as PC bangs and gaming arcades, significantly decreased to -11.9% and -48.1%, respectively.

In 2020, domestic gaming industry exports amounted to 8.19356 billion USD (9.6688 trillion KRW, based on the annual sales standard of 1,180.05 KRW by the Bank of Korea in 2020), which is a 23.1% increase from the previous year. Imports were worth 270.79 million USD(approximately 319.5 billion KRW), which is a 9.2% decrease from the two previous years.

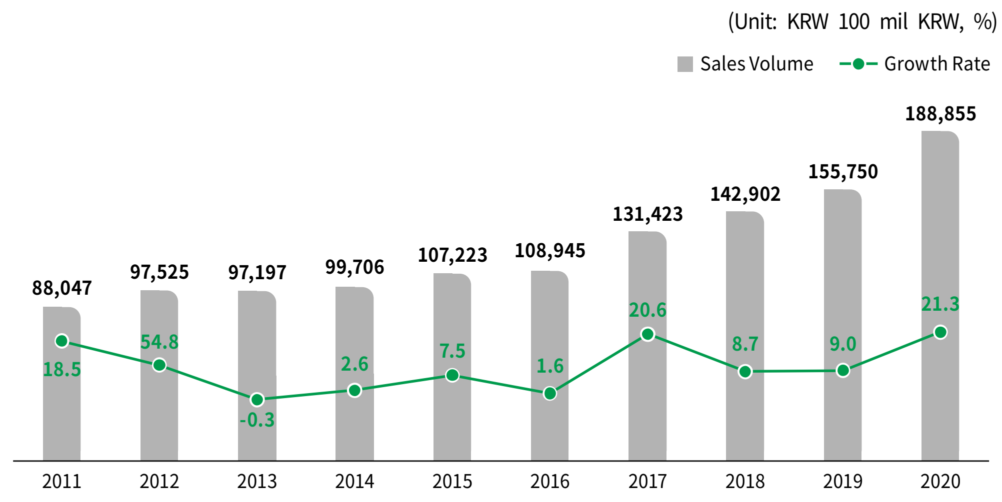
The following outlines the key status of the domestic gaming industry, and several issues affecting it.

Part 1 Gaming Industry Trends in 2020

1) A 21.3% increase in the domestic gaming market in 2020, compared to the previous year, amounting to 18.8855 trillion KRW

In 2019, the size of the domestic gaming market was worth 15.575 trillion KRW, a 9.0% increase compared to its 14.2902 trillion KRW value in 2018. The domestic gaming industry has gradually increased in the past 10 years, except in 2013 when the market slightly contracted. Korea's economic growth rate remained at 2% in 2019, while the gaming industry continues to grow.

Figure 1 Total Size and Growth Rate of the Domestic Gaming Market(2011~2020)



2) The mobile gaming market amounts to 10.8311 trillion KRW, making up 57.4% of the total gaming industry sales

Now that high-quality games can be enjoyed easily anytime and anywhere with the convenient accessibility to mobile devices and improvement in hardware specifications, the mobile game market has steadily grew. In 2020, the sales of mobile games also increased significantly, as indoor activities increased due to COVID-19. Mobile gaming market sales in 2020 amounted to 10.8311 trillion KRW, comprising a 57.4% share in the domestic gaming industry.

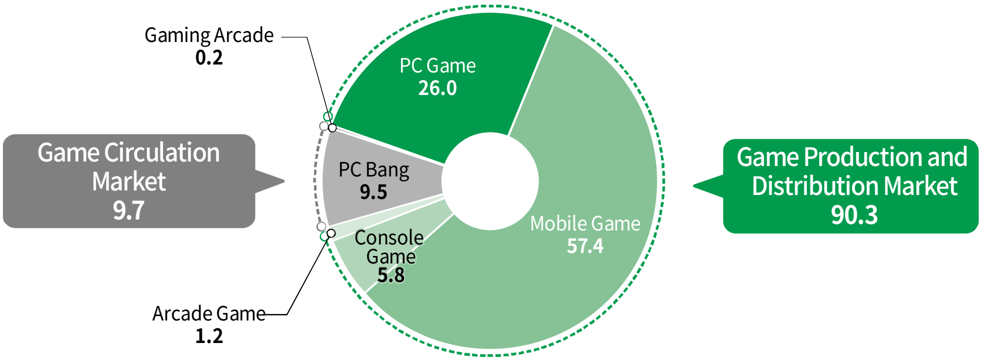
Console gaming sales in 2020 amounted to 1.925 trillion KRW, a remarkable growth rate of 57.3% from the previous year, with a market share of 5.8%, a 1.3%p from the previous year. The explosive growth of console gaming sales was influenced by the huge success of the Nintendo Switch game console and one of its games, <Animal Crossing>.

PC games and arcade gaming market sales increased by 2.0% and 1.6%, respectively, while their market shares decreased by 4.9%p and 0.2%p, respectively, from the previous year. The market share of PC games in 2020 was 26%, while that of arcade games was 1.2%.

On the other hand, game circulation businesses, such as PC bangs and gaming arcades, experienced a significant decrease in sales as their business was restricted due to the impact of COVID-19. PC bang sales was recorded at 1.797 trillion KRW, a 11.9% decrease from the previous year, while that of gaming arcade sales reached 36.5 billion KRW, a 48.1% decrease from the previous year. The market share of PC bangs in 2020 was 9.5%, and that of the gaming arcades was 0.2%.

Figure 2 Domestic Gaming Market Share by Field

(Unit: %)



3) Domestic gaming market size expected to show high growth in the future

The size of the domestic gaming market in 2021 is expected to increase by approximately 6.1%, compared to 2020, and to amount to 20.422 trillion KRW in value. As the COVID-19 pandemic continues in 2021, the game production and distribution markets are expected to continue to grow, focusing on mobile and console games. Moreover, the distribution market, such as PC bangs and game arcades, suffered significant damage through business restrictions in 2020. However, a slight growth is expected from the base effect in 2021.

In 2021, the size of the PC gaming market is expected to decrease by 4%, compared to 2020, and to amount to 4.7058 trillion KRW in value. PC games have relatively high development costs and fewer users, leading to fewer new releases. Thus, the PC game market is expected to stagnate or slightly decrease. Sales restrictions at PC cafes have been somewhat relaxed, and sales are expected to gradually recover in 2021 on the back of the base effect.

Due to the impact of COVID-19, the number of new users in the mobile game sector has increased significantly. Moreover, due to its excellent accessibility, the mobile game market is expected to continue its growth in the future. In 2021, mobile game market sales are expected to reach 11.8654 trillion KRW, a 9.5% increase from the previous year.

Table 1 Scale and Prospect of the Domestic Gaming Market(2019~2023)

(Unit: 100 mil KRW, %)

Type	2019		2020		2021(E)		2022(E)		2023(E)	
	Sales Volume	Growth Rate	Sales Volume	Growth Rate	Sales Volume	Growth Rate	Sales Volume	Growth Rate	Sales Volume	Growth Rate
PC Game	48,058	-4.3	49,012	2.0	47,058	-4.0	46,946	-0.2	45,736	-2.6
Mobile Game	77,399	16.3	108,311	39.9	118,654	9.5	132,181	11.4	143,945	8.9
Console Game	6,946	31.4	10,925	57.3	12,815	17.3	14,955	16.7	18,364	22.8
Arcade Game	2,236	20.6	2,272	1.6	2,053	-9.6	2,161	5.3	2,315	7.1
PC Bang	20,409	11.6	17,970	-11.9	19,456	8.3	21,441	10.2	23,478	9.5
Game Arcade	703	2.4	365	-48.1	386	5.6	592	53.4	772	30.6
Total	155,750	9.0	188,855	21.3	200,422	6.1	218,275	8.9	234,611	7.5

In the console gaming market, the sales of the next-generation game consoles of SONY and Microsoft have been increasing, and the Nintendo Switch is steadily growing in popularity. Moreover, with the development of game engines, the cases of converting mobile or PC games to consoles have been increasing, as the development of console games is also increasing in Korea. Thus, the console market is also expected to continuously grow.

On the other hand, the popularity of arcade games and gaming arcades was significantly reduced in 2020 due to COVID-19. And it is expected that a quick recovery would be difficult to accomplish in the future. In 2021, the arcade game production and distribution markets are expected to decrease by 9.6%, compared to the previous year, while the gaming arcade market is expected to grow slightly to 5.6%, following the base effect.

4) Exports in 2020 amounting to 8.19356 billion USD, with a 23.1% YoY increase

In 2020, the domestic gaming industry's exports increased by 23.1% YoY, amounting to 8.19356 billion USD. If the 2020 annual sales standard of 1,180.05 KRW(based on the Bank of Korea announced KRW-USD exchange rate) is applied, exports is approximately equivalent to 9.6688 trillion KRW. On the other hand, the import value decreased by 8.2%, amounting to 270.79 million USD, which is about 319.5 billion KRW.

Table 2 Export Status of the Domestic Gaming Industry

(Unit: 1,000 USD, %)

Type		2014	2015	2016	2017	2018	2019	2020
Export	Export Amount	2,973,834	3,214,627	3,277,346	5,922,998	6,411,491	6,657,777	8,193,562
	Rate of Change	9.5	8.1	2.0	80.7	8.2	3.8	23.1

Table 3 Import Status of the Domestic Gaming Industry

(Unit: 1,000 USD, %)

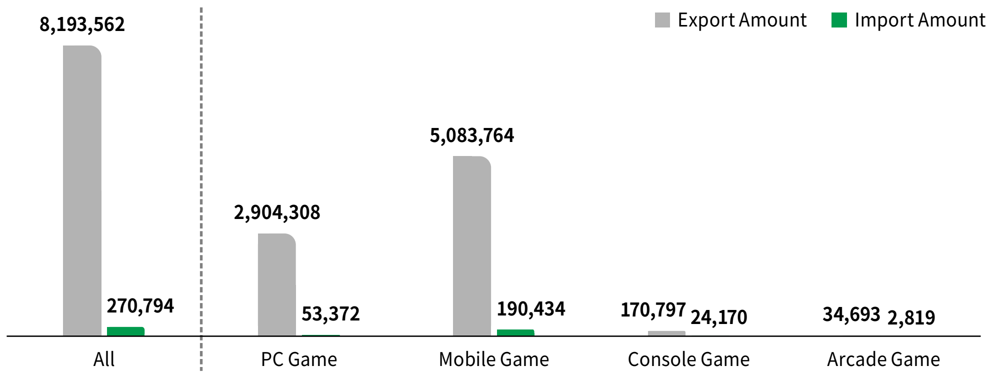
Type		2014	2015	2016	2017	2018	2019	2020
Import	Import Amount	165,558	177,492	147,362	262,911	305,781	298,129	270,794
	Rate of Change	-3.9	7.2	-17.0	78.4	16.3	-2.5	-9.2

Among all gaming platforms, the export scale of mobile games was the largest, worth 5.0837 billion USD. Next, the export scale of PC games amounted to 2.9431 billion USD. The export scale of console games amounted to 170.80 million USD, while that of arcade games amounted to 34.69 million USD.

In terms of import scale, PC gaming sales totaled 53.37 million USD in 2020, a 360,000 USD decrease from the previous year. As of 2020, the console gaming platform generated the highest sales growth, 24.17 million USD, an increase of 30.2% YoY. Mobile gaming sales were about 190.43 million USD, while arcade gaming sales were about 2.82 million USD.

Figure 3 2020 Export/Import Scale by Domestic Gaming Platform

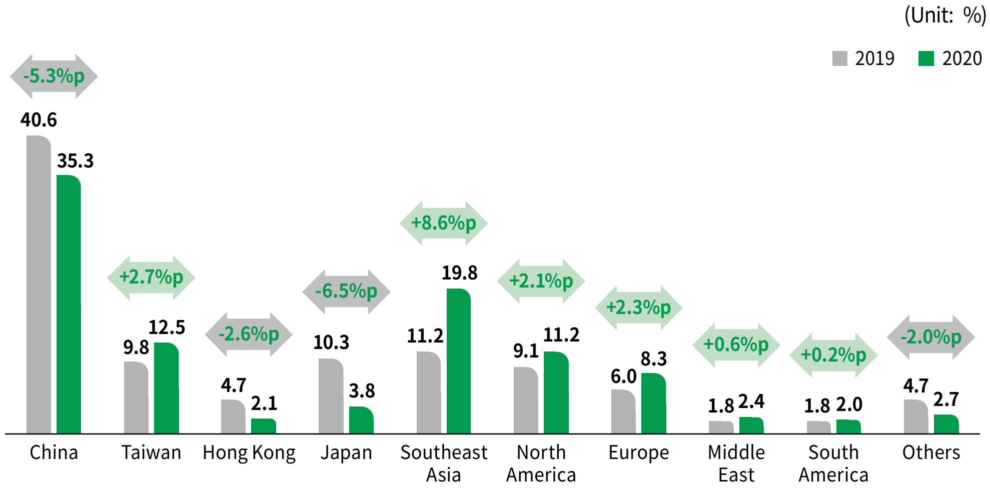
(Unit: 1,000 USD)



In terms of the share of domestic gaming exports by country and region in 2020, the share of “China” was highest at 35.3%. This was followed by “Southeast Asia” with 19.8%, “Taiwan” with 12.5%, “North America” with 11.2%, and “Europe” with 8.3%. Comparing it to the previous year, the export share to

"Southeast Asia" increased by 8.6%p, while the exports to "China" and "Japan" decreased by 5.3%p and 6.5%p, respectively.

Figure 4 Comparison of the Share of Domestic Gaming Exports by Country(2019 -2020)



In terms of the share of domestic gaming exports by country and region in 2020, the share of "China" was highest at 45.0% for PC gaming exports. This was followed by "Europe"(14.0%), "Taiwan"(113.3%), "North America"(9.0%), "Southeast Asia"(5.0%), etc. The share of exports to "China"(-11.1%p), "Japan" (-4.2%p) and "Hong Kong"(-2,0%p) decreased, while "Taiwan"(4+4.7%p), "Southeast Asia"(+2.2%p), "North America"(+2.3%p), "Europe"(6.8%p), "Middle East"(+0.8%p), and "South America"(+1.2%p) all increased.

For mobile gaming exports, the share of "China" was highest with 30.8%, followed by the share of "Southeast Asia"(28.7%), "North America"(12.2%), "Taiwan"(12.0%), "Europe"(5.1%), etc. In comparison with 2019 figures, the shares of exports to "Hong Kong"(-3.0%p), "Japan"(-8.6%p), and "South America"(-0.5%p) decreased, while that of "China"(+0.9%p), "Taiwan"(+1.5%p), "Southeast Asia"(+10.8%p), "North America"(+1.5%p), "Europe"(+0.1%p), and the "Middle East"(+0.2%p) increased.

5) Korea possesses a 6.9% share of the global market

Through comparison by country as of 2020, Korea accounted for a 6.9% share of the global gaming market. Korea ranked in the 4th place after the US, China, and Japan. Compared with the previous year, the Korean game market recorded double-digit growth in 2020, surpassing the UK, and rising from 5th to 4th place. Countries ranked from the fifth to tenth places were the UK, Germany, France, Italy, Canada, and Spain, respectively.

In terms of platforms, as of 2020, Korea ranked as the third after China and the US, with a 12.4% market share. Korea remained the world's second largest player in PC gaming until 2016, but, in 2017, it was replaced by the U.S., and dropped down to the third place. In 2018, Korea rose to the second place, overtaking the U.S., but was pushed out by the U.S. again to the third place in 2019.

In 2020, Korea ranked the fourth with a 10.3% share of the global mobile gaming market, as it was in the previous year. The top three countries were China, the US, and Japan, respectively. In the 2020 global mobile gaming market, the shares of China, the US, and Japan were 26.4%, 17.9%, and 13.8%, respectively.

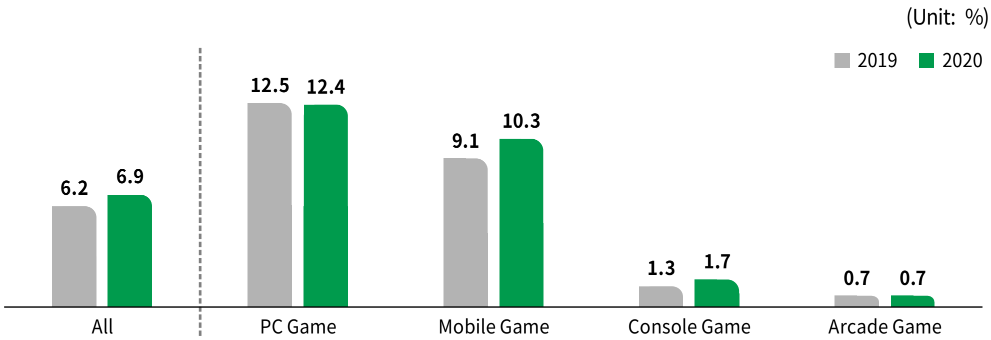
On the other hand, the shares of Korean console gaming and arcade gaming in the global market have been minuscule at 1.7% and 0.7%, respectively. However, in the case of console gaming, the global market share increased by 0.3%p in 2019, and then increased by 0.4%p in 2020, gradually expanding its share.

Table 4 2020 Share of the Domestic Gaming Market in the Global Market(Based on Sales Volume)

(Unit: 1 mil USD, %)

Type	PC Game	Mobile Game	Console Game	Arcade Game	All
Global Gaming Market	33,512	89,348	55,826	30,973	209,658
Domestic Gaming Market	4,153	9,178	926	223	14,481
Share	12.4	10.3	1.7	0.7	6.9

Figure 5 Comparison of the Domestic Gaming Market Share in the Global Market



6) A total of 1,046 production/distribution companies, 9,970 Internet cafés, 525 gaming arcades, and 83,303 workers

As of 2020, there were 1,046 game production and distribution companies. It was also estimated that there were 9,970 PC bangs and 525 gaming arcades. Moreover, the total number of workers in the gaming industry stood at 83,303, a 6.6% decrease compared to 89,157 workers in 2019. The number of workers in the game production and distribution business reached 44,310, making up 53.2% of the total number of workers, while the number of workers in the game circulation business stood at 38,993, making up 46.8% of the total number of workers.

The number of workers in the game production and distribution business in 2020 increased by 12.5% YoY. The number of workers increased across all gaming platforms, except for the console gaming platform. The mobile game sector, in particular, the number of workers significantly increased by 17.2%, compared to the previous year. The number of workers in the game circulation business(PC bang and gaming arcade) decreased by 21.6% YoY, following the impact of business restrictions due to COVID-19. The number of workers in the PC bang business decreased by 21.8%, and that of gaming arcades by 12.3%. As a result, for the first time in 2020, the number of workers in the game production and distribution businesses surpassed the number of workers in the game circulation business.

Table 5 Number of Gaming Industry Workers(2018-2020)

(Unit: Person, %)

Type		2018	2019	2020	2020 Composition	YoY Rate from 2019
Game Production & Distribution	PC Game	13,344	13,430	14,600	17.5	8.7
	Mobile Game	21,742	23,057	27,028	32.5	17.2
	Console Game	529	1,348	1,110	1.3	-17.7
	Arcade Game	1,420	1,555	1,572	1.9	1.1
	Subtotal	37,035	39,390	44,310	53.2	12.5
Game Circulation	PC Bang	46,853	48,810	38,154	45.8	-21.8
	Gaming Arcade	1,604	957	839	1.0	-12.3
	Subtotal	48,457	49,767	38,993	46.8	-21.6
Total		85,492	89,157	83,303	100.0	-6.6

7) The global gaming market in 2020 grew by 11.7% YoY

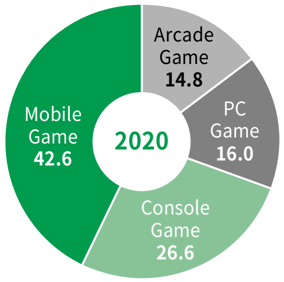
The size of the global gaming market in 2020 increased by 11.7% YoY, amounting to 209.658 billion USD. The mobile gaming market, in particular, increased by 22.4%, compared to the previous year, thus leading the growth of the gaming industry. Meanwhile, the console gaming market increased by 14.6%, and the PC gaming market by 5.4%. However, the arcade gaming market decreased by 9.2% YoY.

The mobile platform, which has been maintaining its highest share in the global gaming market since 2016, occupied the entire gaming market with a 42.6% share, amounting to 89.348 billion USD, in 2020. Following the mobile gaming market, the console gaming market has a 26.6% share that amounted to 55.826 billion USD, while the PC gaming market has a 16.0% share, amounting to 33.512 billion USD, and the arcade gaming market has a 14.8% share, amounting to 30.973 billion USD.

The mobile platform game market share is expected to increase further in the future, following improvements in smartphone device performance and the expansion of high-speed wireless networks. Meanwhile, the share of the arcade gaming market is expected to decrease to 12.8% by 2023.

Figure 6 Global Gaming Market Share by Platform(2020/2023)

(Unit: %)

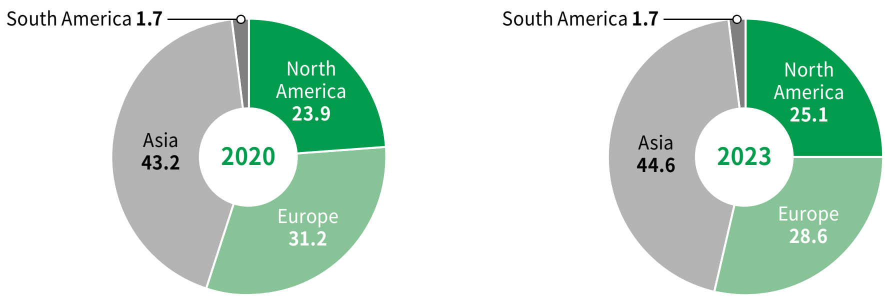


Source: PwC(2021), Enterbrain(2021), JOGA(2021), iResearch(2021), Play Meter(2016), NPD(2021).

In terms of the market share of each region in the global gaming market, it is expected that, by 2023, the shares of Asia and North America will further increase, while that of Europe will decrease, compared to 2020. Based on the growth of gaming in China and Korea, which have been leading the global mobile gaming market, the market share of the Asian region is expected to increase by 1.4%p, from 43.2% in 2020 to 44.6% in 2023. On the other hand, in the case of Europe, despite the growth of the gaming industry, the growth rate of the global gaming market is expected to decrease by 2.6%p to 28.6% in 2023, a slowdown in growth compared to other regions.

Figure 7 Global Gaming Market Share by Region(2020/2023)

(Unit: %)



Source: PwC(2021), Enterbrain(2021), JOGA(2021), iResearch(2021), Play Meter(2016), NPD(2021)

Part 2 Major Issues in the Domestic Gaming Industry in 2020

1) The impact of COVID-19 on the gaming industry

The COVID-19 pandemic had a huge impact on the domestic gaming industry. Game companies have proactively established a response system by implementing a work-from-home strategy. As the work-from-home strategy was extended, a new game development methodology emerged. However, the launch of new games became stagnant because it could not keep up with the efficiency of face-to-face collaboration.

The number of game users has significantly increased. New inflows not only from existing game users but also from non-users rose dramatically. Then, after the crisis alert was escalated to “severe” at the end of February, the number of users increased sharply. In general, the number of game users decreases as outdoor activities increase in the spring, but, this time, the number of users increased due to the expansion of indoor activities. The increase in game use was more noticeable on weekdays than on weekends. Typically, game use increases on weekends, and decreases on weekdays, but, in the first half of the year, the difference between the number of weekday and weekend game users decreased by 63%. In early March, when the World Health Organization(WHO) declared a pandemic, the number of weekday users exceeded the number of weekend users. The number of mobile game application installations also increased by 84%.

WHO, which assigned a disease code to excessive game use, also encouraged game use in the process of overcoming COVID-19. Tedros Adhanom Ghebreyesus, the director-general of WHO, said: “Let’s listen to music, read, and play games at home.” Accordingly, game companies also launched the #PlayApartTogether campaign to encourage social distancing through games.

Naturally, the size of the game industry has grown. The time spent playing console games, as well as mobile and PC games increased. Similarly, expenses also increased. Game companies recorded the highest performance ever.

NCSOFT surpassed the previous year's annual performance only by its earnings until the 3Q, while other large companies, such as Nexon and Netmarble, also recorded high growth.

Game companies also contributed donations to improve the public's awareness of games. Nexon, NCSOFT, and Netmarble donated 2 billion KRW each to help overcome COVID-19. It was larger than the 1 billion KRW donated by the Lotte, Shinsegae, and Hyundai Department Store groups. Smilegate and KRAFTON also donated more than 1 billion won. Through such efforts, companies expressed their gratitude for the growth of close relationships with game users.

Meanwhile, e-sports welcomed a new trend. As domestic and international competitions involving traditional sports, such as soccer, baseball, and basketball, were not held, e-sports quickly emerged as an alternative. E-sports could be enjoyed regardless of place or time through live streaming platforms on the Internet. The "League of Legends Champions Korea(LCK) Spring," a domestic e-sports competition, switched to a match without spectators during the tournament, but its popularity has grown. The average daily number of viewers increased by 13.4% YoY to 4.63 million, and the highest average daily number of concurrent viewers increased by 4% YoY to 820,000. Among them, overseas viewers were 62% of the total number of viewers, reaching about 510,000.

Established sports attempted to collaborate with e-sports to keep fans interested during the suspended period due to the spread of COVID-19. F1 replaced the offline Bahrain Grand Prix, which was postponed due to COVID-19, with a video game, in which real F1 drivers and guests participated. The National Association for Stock Car Auto Racing(NASCAR) also held an online racing competition, in which active players participated, just like F1. As a result, an analysis showed that e-sports would grow faster than the market forecast. Thus, they seized an opportunity to further expand their fan base through integrating with established sports. The government also exerted an effort to secure the lead as the country of origin of e-sports by holding the "Korea-China-Japan e-sports competition." However, due to the spread of COVID-19, the event has been postponed to 2021.

On the other hand, PC bangs and gaming arcades suffered. PC bangs were closed to prevent the spread of COVID-19. Later, game companies supported the PC bang industry by exempting them from PC bang fees. The market size of the gaming arcade industry decreased as both the export and domestic markets suffered from impact. Many small gaming arcades that had been around for a long time went out of business; the number of users of large gaming arcades linked to the multiplex has plummeted; and many VR game rooms closed shop as well. Large arcade game companies, such as Andamiro and Uniana, looked for a way out by increasing sales in the console sector. However, it is expected that it would take several years for the gaming arcade industry to recover from the damage.

2) The Chinese market opened its doors in 3 years and 9 months

The game version number is a type of distribution license that must be obtained in order to release a game in China. This must be obtained through a local publisher in China. A game cannot be distributed in China without the game version number. Nexon's <Dungeon Fighter Mobile>, which was scheduled to be released in August 2020, was postponed indefinitely due to the youth protection system even after a release date was set.

China, which had not allowed the new entry of Korean games for a while, opened its doors for the first time in 3 years and 9 months. The State Administration for Press, Publication, Radio, Film, and Television(SAPPRFT), which is in charge of the management of game version numbers, included <Summoners War: Sky Arena> by Com2uS, a Korean game company, after announcing the list of approvals for foreign editions in December.

Though China resumed issuing the game version numbers for Korean games, uncertainties have not been resolved amid the ongoing Chinese government's tightening game regulations. As China is gradually reducing its overseas game imports, the competition to enter the Chinese market is becoming fiercer.

Meanwhile, China has been the largest importer of Korean games since the early 2000s. From March 2017 to December 2020, Korean games did not receive new game version numbers, but because of the popularity of the games that have already entered the market, China remains Korea's largest export market. <The Legend of Mir 2>, <Dungeon Fighter>, and <Crossfire> have been leading the growth in the Chinese game market with their huge successes.

3) Improvement of game-related regulations and announcement of mid- to long-term strategies

The daily loss limit for web board games, which has been abolished, is a regulation that limits the amount a user can lose in a game to 100,000 KRW per day. This regulation was introduced in 2014, along with a one-time use limit and a monthly payment limit to prevent speculation in web board games. However, the web board game industry has been arguing that it is an excessively redundant regulation.

Thus, the Game Rating and Administration Committee established a process to designate personnel who will be in charge of user protection and speculation prevention, as a form of self-regulation. Moreover, the Committee allowed all users to set up a daily loss limit on their own, up to 500,000 KRW.

Sports Betting games were also included in the system. As the regulations applied to web board games were imposed, related businesses began to show signs of revitalization. In addition to existing betting game companies, game companies also took on new challenges. NHN, Mgame, and Neptune then entered the market.

The government announced the “Comprehensive Promotion Plan for the Game Industry” to promote the game industry, while gradually improving game-related regulations. With the goal of achieving 11.5 trillion KRW in exports and 102,000 jobs by 2024, the government would support innovative growth through active regulatory improvement, and strengthen support for each step, from start-up to overseas market entry. Moreover, it would prepare a system to protect game users from probabilistic items and sensational game advertisements. Furthermore, it established a standard so that while exempting the reporting obligation for minor content modifications that do not affect game rating classification, the amendment in online games and mobile game contents could be reported in advance at the game operator's discretion.

On the other hand, the regulation on speculative arcade games, which were reinforced after the <Sea Story> incident, would be reorganized. It included a plan to vitalize the arcade gaming industry through the relaxation of regulations, such as transforming adult arcades into family-friendly, complex cultural facilities like VR.

Likewise, plans to strengthen the foundation of the game industry by spreading the positive value of games and cultivating the e-sports industry. Plans include the creation of a new Korean wave boom by leading the e-sports culture through the "Korea-China-Japan e-sports competition," and the acknowledgement of e-sports as an official sport in consideration of the possibility of becoming an official sporting event. Also, permanent e-sports stadiums would be built in Busan, Daejeon, and Gwangju to lay the groundwork for e-sports areas, and to expand the base.

With the announcement of the mid- to long-term plans, the government called the game industry as "an industry that can withstand recessions." The game industry benefited from social distancing due to COVID-19, and was noted as a key industry to lead the development of new technologies, such as cloud, AI, and block chain.

4) Amendment of the Game Industry Promotion Act discussed for the first time in 14 years

The amendment of the "Game Industry Promotion Act" will be implemented for the first time in 14 years. The Game Industry Promotion Act, which was enacted in 2006, is the world's only independent law related to the game industry. Though it was enacted to create a foundation for the game industry and to strengthen competitiveness, it did not provide sufficient policy support regulations related to the promotion of the game industry, or reflect the changed industrial environment. Thus, the National Assembly proposed a bill to amend the Game Industry Promotion Act to respond to the changes of the times, strengthen the protection of game users, and reorganize the unreasonable system.

The amendment will increase user convenience by exempting the reporting obligations of minor content modifications and improving the identity verification method, and deal with problems in the past, such as the prohibition of advertisements for illegal acts, including currency exchange and unlawful programs, and the exemption from rating classification for non-profit games.

Opinions were divided on the amendment because it encompasses several contents. Most of the discussion was in relation to the disclosure of probabilistic items. The gap between the industry and users was also wide. The amendment made it mandatory to disclose the probability of obtaining a probability-type item whose effectiveness and performance are determined by chance factors. If violated, the suspension of business, cancellation of registration, or closure will be imposed. This is a supplementary measure to the users' criticism that probabilistic items cause over-consumption and encourage speculative sentiment.

Until now, probabilistic items have been managed in a self-regulating manner in the game industry. Though the information on the probability of obtaining an item drawn from a random box was disclosed, the low probability and the integrity of the publication probability caused problems, so the government and the National Assembly decided that a restraint system was necessary to protect users.

The amendment also included content to further strengthen the protection of users' rights, such as the establishment of an obligation by game business operators to protect users, and the mandatory designation of a domestic agent in the case of overseas business operators. After the announcement of the draft in February, the amendment was proposed as a legislative bill in December by the Assembly members after sufficient discussion and collection of opinions.

5) Time for the digital therapeutics game market

On June 15, 2020, the US Food and Drug Administration(FDA) approved the first marketing of a game-based, digital therapeutics(DTx) aimed at improving the attention function of pediatric attention deficit hyperactivity disorder (ADHD). It is <EndeavorRx> produced by "Akili Interactive," an American company, and it was modeled after <NeuroRacer>, which was released in 2013. It is a game in which the player races while avoiding traps in a hover boat, and the player's attention span is improved in the process by focusing on the game to achieve goals. When the attention deficit was measured again four weeks after the prescription, one-third of the patients scored higher than the baseline in at least one area. About 68% of parents reported that their children's daily disabilities were reduced after receiving treatment, and no serious adverse events were reported. The time has come when games are recognized as remedy. As a result, social and medical interest in digital therapeutics has increased.

Digital therapeutics are software in the form of apps, games, and virtual reality(VR), and are used for medical treatment after strict treatment effectiveness verification and regulatory approvals. Since the purpose of treatment must be achieved, it must present evidence of the therapeutic effect through clinical trials, just like existing drugs.

Gamification leads changes with no chemical use. It is a technique that solves problems, induces interest, and changes behavior by applying gaming elements and principles to non-game areas. The process of solving problems and deriving results by making specific rules is closely related to medical treatment. If games in general utilize game elements to increase user participation, functional games, such as digital therapeutics, are structured in a way that provides purpose and value to the game itself. <EndeavorRx> also creates a medical impact as it is structured to maintain concentration.

Since digital therapeutics focus on specific clinical treatment data, it is a field that is expected to grow in the future through integration with big data and AI. Based on the data generated when medical staff prescribe games and patients play games, AI can build an ecosystem that provides treatment that is tailored to individual needs.

According to Allied Market Research, a market research company, the global digital therapeutics market is expected to grow from 2.12 billion USD in 2018 to 9.64 billion USD in 2026 at an average annual growth rate of 19.9%. There are no cases of approval as a digital therapeutic in Korea, but a number of companies are developing it.

The digital therapeutics market is at an early stage, and the role of games is growing. The research on therapeutics using games in various fields, such as ADHD, psychiatric disorders, diabetes, at-home prognosis management of cancer patients, alcoholism, insomnia, obsessive-compulsive disorder(OCD), and visual field disorder, is in progress.

6) Release of next-generation gaming consoles

The next-generation gaming consoles, including the PlayStation 5(PS5) and the Xbox Series X(XSX), were released in Korea in November. Sony and Microsoft started releasing new consoles around the same time in 7 years, and it boosted interest in console games. As all new products were sold in advanced reservations, competition intensified.

Both consoles are equipped with AMD-based CPU/GPU support 4K video, and boast of fast access by using SSD, as well as real-time ray tracing(light source tracking). With the release of new consoles, Sony emphasized the subscription service, adding a new collection to PS Plus, the PS subscription service. It offers <God of War>, <Bloodborne>, <Monster Hunter: World>, <Uncharted 4>, and <Final Fantasy 15> as a backwards compatible service to download and enjoy popular PS4 games. It seems to be a strategy to buy time until the PS5 exclusive game is secured.

Microsoft chose cloud gaming to gain a competitive edge. In order to solve the chronic lack of exclusive games, it introduced the cloud subscription game service, including “Game Pass” and “Xbox All Access.”

Game Pass is a service that allows players to enjoy an unlimited library of games for a fixed monthly fee. Game Pass Ultimate users can enjoy games as a subscription on console, PC, and mobile games. Theoretically, players can enjoy the same gameplay experience on all platforms.

In Korea, SK Telecom introduced a rental service, Xbox All Access. Players can rent an Xbox Series X(XSX) or Xbox Series S(XSS) for two years for a fixed monthly fee. They can also use Game Pass Ultimate at the same time. It is the only service provider in Asia that offers such a service. The monthly fee is set at 39,900 KRW for XSX, and 29,900 KRW for XSS.

The new device serves not only as a game console, but also as a media entertainment device. The operating system has been improved for media, such as Netflix and YouTube, so that both games and media content can be used conveniently. It supports Apple TV, YouTube, Netflix, Hulu, Peacock, Spotify, Amazon Prime Video, Disney +, Twitch, HBO Max, etc. Moreover, it supports Dolby Vision and Dolby Atmos to enhance immersion, and the design was created with care so that it could harmonize with the interior of the living room as a home entertainment device.

With the added advantage of being able to consume AAA-grade games and video content, the next-generation console device was in short supply. The so-called “reseller,” who buys the product and resells them at higher prices, was on the rise. Resellers sold the PS5 for between 900,000 and 950,000 KRW, which is 1.5 times the regular price. The distribution industry has improved the system so that products are supplied to end-users through various means, such as conducting sales through a lottery system, but failed to overcome the supply shortage due to concurrent semiconductor supply and demand problems.

The release of new console devices has also become a hot topic for domestic game companies. They actively responded by developing games for the console platform to enter overseas markets and target new markets. In 2020, Netmarble’s first console game <Seven Knights: Time Wanderer> got the first place in the Nintendo eShop category, and <Buried Stars> released by Line Games received good reviews. Pearl Abyss decided to support the console platform for <Crimson Desert>, following the next-generation game console support for <Black Desert>. Nexon will enter the console market with

<Crazyracing Kartrider: Drift> and Smilegate, with <Crossfire X>. NCSOFT also released its console game <Fuser> through NCWest, a North American subsidiary.

7) Area expansion of game companies

2020 was a year for game companies to expand their business into new areas beyond games. Convergence attempts continued not only in the adjacent industries, such as webtoons and entertainment, but also in various fields of medical care and finance. The latest technologies, such as artificial intelligence (AI) and big data, acquired through games were utilized for convergence.

NCSOFT has unveiled “Universe,” a K-Pop entertainment platform, which showcases the contents of famous Korean singers. It also collaborated with KB Securities through AI technology, a service in which AI advises on asset management. Moreover, it continued its investment in webtoons and web novels.

Nexon started working with Shinhan Bank to develop a business model that combines games and finance. While discovering new business models based on AI and big data and promoting a payment business based on financial infrastructure, it decided to develop contents that link games and finance, and promote joint marketing. NXC, the holding company of Nexon, continued investment and acquisitions to extend its entry into fashion, virtual assets, and blocks.

Netmarble completed its acquisition of home appliance rental company Coway in February. In addition to the big picture of developing a smart home subscription economy business by integrating IT technologies acquired in the game business, such as AI, cloud, etc., with operation know-how, it announced a plan to expand its scope to Internet of Things(IoT) services beyond home appliances, such as simple water purifiers and air purifiers. Netmarble’s move drew attention as an unprecedented integration of the game industry and heterogeneous industries.

JoyCity established a subsidiary, Roadbe Webtoon, to promote a new webtoon business in December. With a goal of presenting high-quality, full-length webtoons based on its planning and production capabilities, it strengthened its webtoon production capabilities by running an artist program, a webtoon production studio, and an incubating program. It expanded its business scope from games to webtoons by announcing that it would also develop webtoons, such as <Freestyle>, <Gunship Battle>, and <God of Dice>, which are its own game intellectual property rights(IP). Moreover, JoyCity decided to conduct IP-based business with Funny Bro. JoyCity plans to produce various contents by creating business models, such as IP-based web dramas and animations.

Smilegate produced a 36-episode drama based on <Crossfire> with a Chinese drama production company, generating great sensation locally. It is also planning to produce a movie based on the Crossfire IP in partnership with Sony Pictures, an American film company.

WeMade entered the blockchain, blockchain game, and non-fungible token (NFT) business through its subsidiary, WeMade Tree. In December, it released <Bird Tornado>, and allowed the acquisition of tokens by playing the game, allowing the purchase of items and upgrade of weapons through game tokens.

8) Changes in the e-sports market

2020 was a year of change in the e-sports market. As new platforms with excellent accessibility, such as Naver and Twitch, emerged, the leverage of cable broadcasting companies that specialize in e-sports, such as OGN, SPOTV Games, etc., weakened. OGN was canceled, and SPOTV Games changed its name to STATV, which focuses on entertainment.

There were also positive signs. As large corporations began to enter the e-sports market, companies that had no relevance with e-sports, such as Nongshim, Korea Yakult, KIA, Daemyung Sono Group, Kakao, and Lotte Confectionery, supported e-sports teams. Moreover, BMW, Mercedes-Benz, Nike, Samsung Electronics, etc. also sought collaboration with e-sports teams to promote their brands to the Gen Z. Such changes were made possible because it helps in implementing global marketing at a relatively low cost.

Furthermore, e-sports became an official event at the 2022 Asian Games in Hangzhou, making it an opportunity to raise its status. At the same time, public opinion regarding special cases on military service for e-sports players was also formed.

In 2020, the standard contract for e-sports was introduced. A standard contract specializing in the field of e-sports aimed to protect the rights and interests of e-sports players, and to promote mutual benefits and development through fair contracts between players and game teams. The contract includes the prior agreement on prize money distribution ratio, the return of rights to the players after the contract ends, the obligation to consult with players in case of transfer of rights, such as transfers and leases, the prohibition of unilateral contract termination, and the players' right to reject unfair instructions. This allowed both the players and the game teams to have equal rights and duties.

The protection of youth players has also been strengthened. Considering the nature of e-sports players who start playing in their mid-to-late teens, the "Annex Agreement on the Standards for e-Sports Youth Players" was prepared separately so that game teams can provide the youth with the right to free choice, right to study, right to personal rights, right to health, right to sleep, right to rest, etc., thus guaranteeing basic rights. Furthermore, legal representatives, such as players' parents, are to be given the authority to request information, such as player-related contracts, offer opinions, and request settlement details, such as prize money, from the game team.

9) Transformation of game shows

2020 was a year when game shows around the world experimented with a new look due to the impact of COVID-19. Since a large number of people is expected to gather in a limited exhibition hall, the Taipei Game Show, Game Developers Conference(GDC), E3, Tokyo Game Show, Paris Games Week, and G-Star were affected. BlizzCon, a Blizzard game event, also had to take a rain check until next year.

E3, the American game show where new games are released the most, cancelled both its offline and its online events, which had been considered to be open. It tried to transform the offline event to an online event, but it was somewhat difficult to reorganize the content without any related experience.

When the E3 in 2020 was canceled due to COVID-19, Geoff Keighley, the host of “The Game Awards” planned and held the “Summer Game Fest,” a digital showcase. It presented new information and demonstration, but the showcase did not receive favorable reviews. Despite the participation of many game companies, such as Activision Blizzard, Bethesda, Bungie, CD Project, EA, and Square Enix, the lack of information on new games led to failure.

On the other hand, Gamescom successfully hosted an online game show through online streaming. It dispelled concerns about online game shows with a game show specializing in new experiences and participatory events, to the extent that it was nicknamed Gamescom, “the model example for demonstration.” Analysts say that the show’s success could be attributed to early preparations after the direction for an online event was set.

“Opening Night Live,” the opening event for Gamescom, exceeded 2 million concurrent viewers. Thirty-eight new games were introduced, and a session that delivers related information was scheduled afterward, which received good reviews. Moreover, no failures occurred even with the access from more than 180 countries around the world. About 1,000 companies participated in the linked event, “Devcom,” and over 3,200 business meetings were held.

Gamescom collaborated with a global multi-channel network(MCN) so that famous global creators could introduce the Gamescom events and games in their own languages. As a result, it succeeded in attracting public attention by actively utilizing social media, such as popularizing the hashtag “#gamescom2020” via social networking services(SNS).

The Tokyo Game Show also switched to becoming an online event, but it was harshly criticized. This is because the server, which is the premise of online events, could not support it. Server connection errors continued for a long time, and it took plenty of time to access it even after recovery. If you click on the banners of participating companies, it only provided the YouTube link and the streaming duration, resulting in the lack of convenience and accessibility. Most of all, the content was limited. Line Games and Koei Tecmo Games released their new games, but there was no new information worthy of the name, which is considered one of the world's top three game shows.

G-Star also went online. G-Star, which was successfully operated even during the H1N1 flu epidemic, set up a broadcasting stage, instead of an offline individual booth to prevent the spread of COVID-19. Both the announcement and the pre-production video were aired through G-Star 2020's official channel, "G-Star TV." More than 850,000 viewers watched G-Star TV, which provided realism and entertainment experiences to the game industry and gamers through various video contents. For the first time in two years, a domestic game company became the main sponsor of G-Star. After 2012, WeMade once again became the main sponsor, and imprinted <Mir 4> in Busan. Participating companies, such as WeMade, Nexon, Krafton, Neowiz, Smilegate, Kakao Games, Com2uS, and 2K, met with game enthusiasts via live online broadcasting or recorded video. B2B was also held as an online non-face-to-face event, from matching to meeting under the name of "Live Biz-matching." It built a system that allowed video meetings anytime and anywhere, as long as an appointment was made with the other party after the advanced biz-matching, using a camera-equipped smart device or PC with Internet access. Moreover, considering the time difference between Korea and other countries, the period was extended from 3 days to 5 days. In Korea, Nexon, Krafton, Smilegate, Neowiz, Netmarblee, NHN, Webzen, Actozsoft, and Gravity participated in the event. Abroad, Nintendo, Google, Facebook, Huawei, Yoozoo Games, and Xsolla were among the companies that participated.

"G-CON 2020," a game conference, was also broadcasted online for free. It was held as a paid conference until 2019, but it was changed to a free event in 2020 so that it could be viewed at any time, even if it was not during lecture hours. E-sports competitions were held as usual, and an indie showcase was also held, thereby quenching the thirst of the independent game industry, which was seeking much-needed publicity due to COVID-19.

ChinaJoy, the largest game show in China, was held offline, and its scale was reduced. There were no on-site sales, as tickets were sold only online, and admission time was adjusted to prevent large crowds from gathering in one place. Nintendo, Bandai Namco, Epic Games, Ubisoft, and Activision Blizzard set up booths in the B2C Hall. In the B2B Hall, there were many game companies that did not participate, so only one hall was open. Among Korean game companies, Line Games participated in ChinaJoy, not in the exhibition, but in the Chinese game developer's video conference.

Part 3 Game Utilization Characteristics

1) Overall game play rate

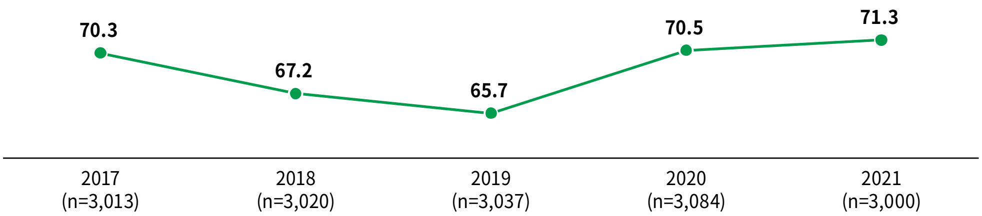
According to a survey on the general public(n = 3,000) ages 10-65 years old regarding game usage since June 2020, 71.3% played games. The mobile gaming platform(90.9%) received the highest usage rate among those with exposure to games(n=2,139). In terms of usage, PC games achieved 57.6%, console games, 21.0%, and arcade games, 9.8%.

Moreover, 98.3% of the respondents(n=2,139) with experience in playing games usually accessed the Internet. When game users were asked about the device they used to log on to the Internet for purposes other than work/academics, the response rate showed that 93.0% use "smartphones," 61.3% use "desktop PCs," 55.9% use "laptops/netbooks," and 36.3% use "tablet PC."

Figure 8 Game Utilization

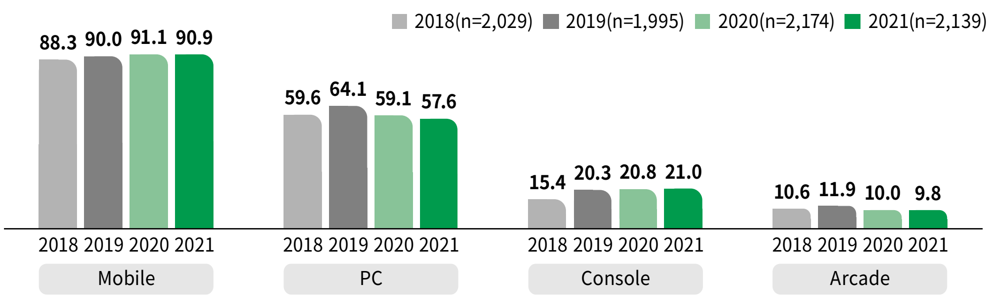
▪ Overall Game Utilization(2017~2021)

(Unit: %)



▪ Utilization by Platform(2018~2021)

(Unit: %, Multiple responses)

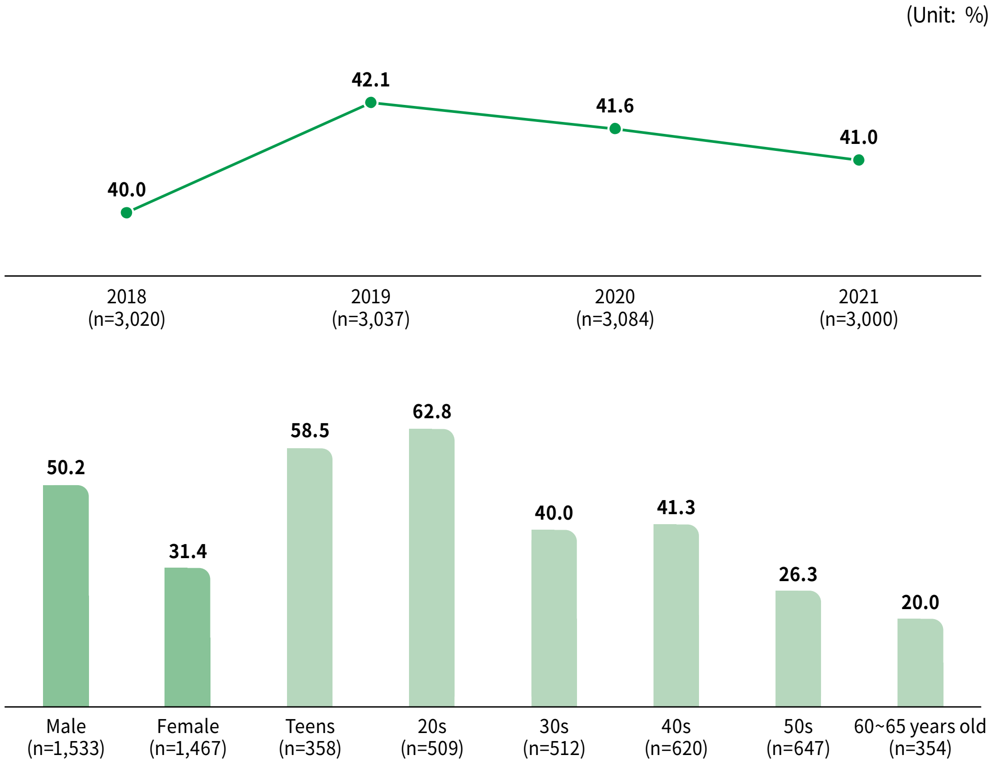


2) Game utilization rate by platform

(1) PC game

The recent(after June 2020) utilization rate of PC games[1] among respondents ages 10-65 turned out to be 41.0%, a 0.6%p decrease, when compared to 2020. The PC game utilization rate among males was significantly higher than the rate among females, and it was comparatively higher among those in their 20s and below.

Figure 9 PC Game Utilization



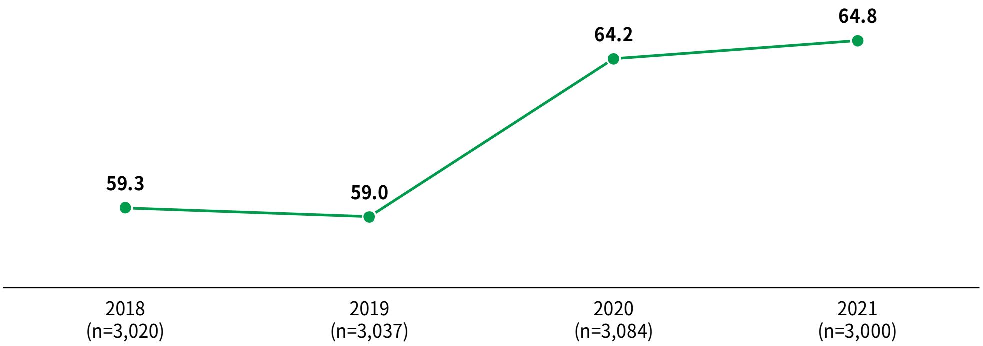
1) Games installed to a PC after they were downloaded from the Internet, or purchased as a game software package. Web browser-based games, which do not need a client program, are included as well.

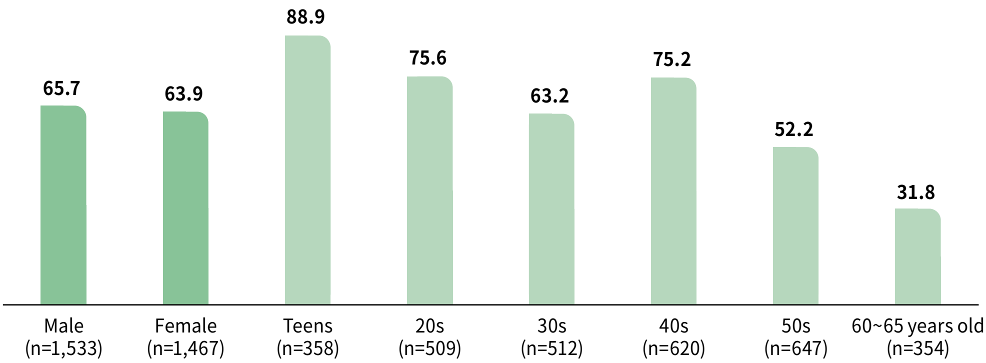
(2) Mobile game

About 2/3(64.8%) of the respondents were found to have recently used mobile games[2)] in the past year, a 0.6%p increase from 64.2% in 2020. There were no significant differences in utilization rates by gender, while the utilization rate among teenagers was the highest.

Figure 10 Mobile Game Utilization

(Unit: %)





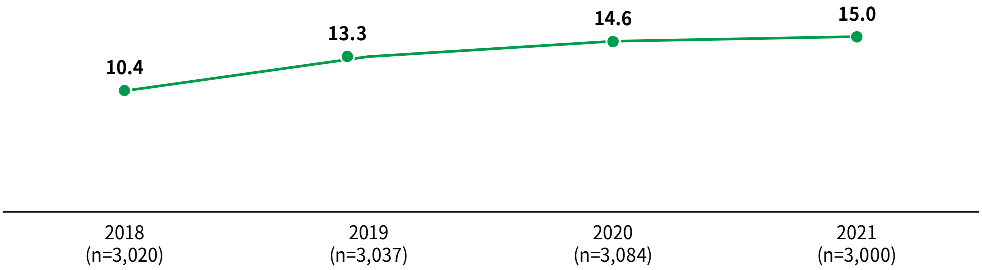
2) Includes games in the form of apps played on smartphones and tablet PCs(iPad/iPod, Galaxy Tab, etc.). (Games played on phones other than smartphones(feature phones) are excluded.)

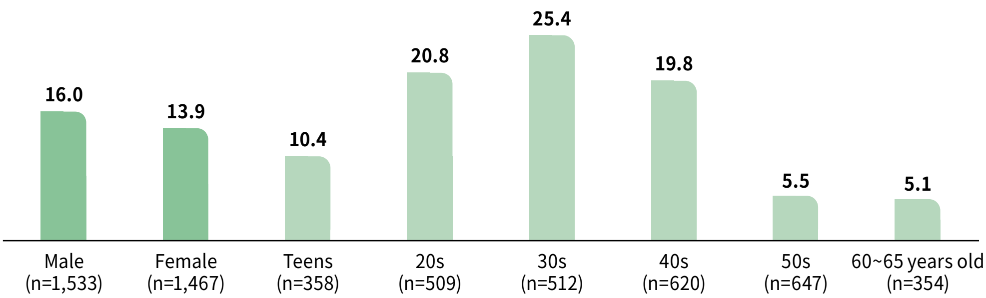
(3) Console game

The utilization rate of console games[3] turned out to be 15.0%, a 0.4%p increase from 14.6% in 2020. The utilization rate by males was higher than the rate by females, while the utilization rate by users in their 30s was comparatively higher than those of other age groups.

Figure 11 Console Game Utilization

(Unit: %)





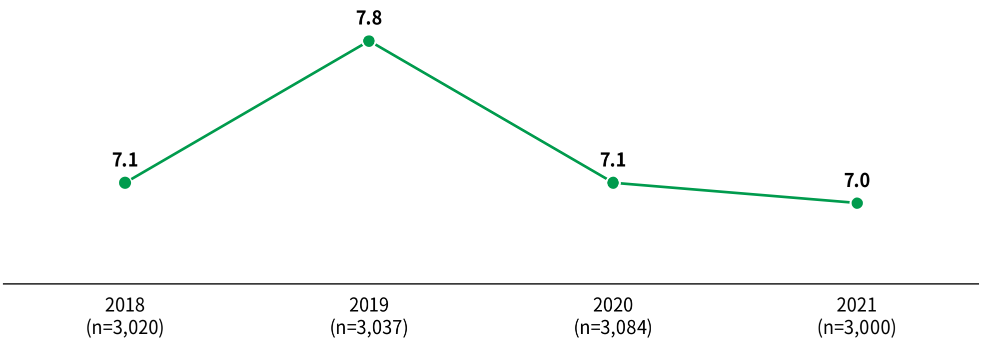
3) Includes games played on game consoles(Playstation, Xbox, etc.) connected to a TV or a display screen, as well as portable consoles(Nintendo Switch, etc.).

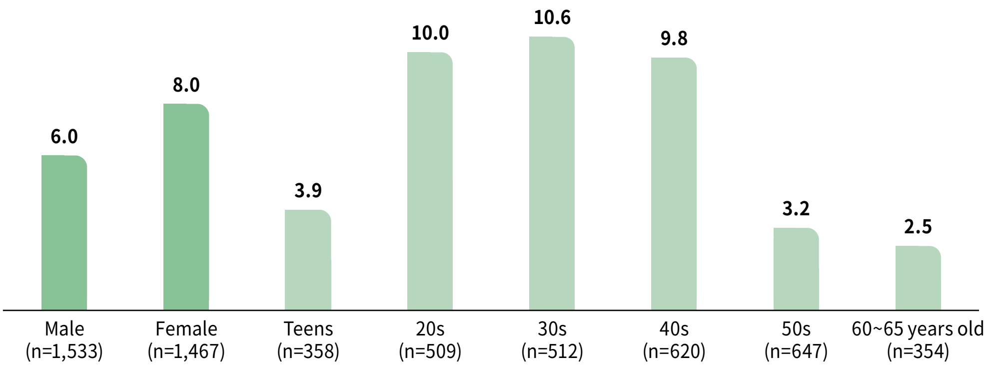
(4) Arcade game

A total of 7.0% of the respondents stated that they recently played arcade games[4], a 0.1%p decrease from the 2020 survey. There was no significant difference between genders. The utilization rate by females was higher than the rate by males, and the utilization rate by users in their 20s and 40s was comparatively higher than other age groups.

Figure 12 Arcade Game Utilization

(Unit: %)





4) Refers to games played at a facility commonly referred to as an arcade.

2021 WHITE PAPER ON KOREAN GAMES

SUMMARY

Ministry of Culture, Sports and Tourism

KOCCA
KOREA CREATIVE CONTENT AGENCY