Market Study Report on Mobile OS and Mobile App Distribution

The Japan Fair Trade Commission (JFTC), February 2023

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Chapter 1. Purpose of the Market Study

1. Purpose of the market study and the overview of this report

(1) Purpose of the market study

While the worldwide spread of COVID-19 has caused major restrictions on people's lives and economic activities, the digitalization of the economy has progressed further. Services essential to people's lives, such as shopping, communication, and information search, are being provided online, and their use has increased.

Smartphones[1] are the main means by which people access various digital content and services. Smartphones have become a daily necessity for consumers, and the usage rate and time of smartphones continue to expand far beyond those of PCs (see Chapter 2 for details). Consumers access a wide variety of digital content and services through browsers and apps downloaded from app stores on smartphones. Also, new products and services used in conjunction with smartphones, such as smartwatches, are expanding.

In addition to apps, digital content and services provided on smartphones, products and services used in conjunction with smartphones are growing and diversifying. In order to provide these products and services, access to mobile OS and app distribution channels[2] such as app stores (see Chapter 3 for details) is essential.

Therefore, it is very important to understand the actual state of competition in mobile OS and app distribution routes from the viewpoint of improving the competitive environment of the market for apps, digital content and services provided on smartphones, and the market for products and services used in conjunction with smartphones, as well as the mobile OS market and the app distribution service market. For this reason, the Japan Fair Trade Commission (JFTC) decided to conduct a market study into the mobile OS market and the app distribution service market[3].

(2) Scope of the market study

The JFTC conducted a survey on the mobile OS market and the app distribution service market in Japan to understand the market structure such as the status and share of enterprises, and to learn if there is a competitive pressure such as the degree of substitutability between mobile OSs and app distribution channels. Also, the JFTC focused on how the competition in the mobile OS market and the app distribution service market affects the competition in the

1 With the exception of citations related to other references and Chapter 6-1, smartphones in this report indicate a device which is equipped with not only texting and calling function but also advanced information processing functions like PCs and conventional mobile phone functions, and users can add functions by obtaining apps from the app store, with a screen size (for a foldable screen, a folded screen size) of less than 7 inches.

2 This includes the distribution of digital content and services provided through apps such as browsers. The same shall apply hereinafter.

3 For details on how to interpret the “market,” refer to Chapter 3-1(3) and Chapter 7.

app market and other smartphone-related markets.

⑶ Structure of this report

The report consists of Chapters 1 through 10.

Purpose and significance of the market study	Chapter 1 provides the purpose of the market study and its method. Chapter 2 explains the increasing importance of smartphones as the background of the market study.
Market overview and situation	Chapter 3 provides an overview of the mobile OS, app store and browser. Chapter 4 provides an overview of the share of the mobile OS and app store in Japan and the business model of Google and Apple respectively.
Assessment of the competitive environment	Chapter 5 summarizes the basic perspectives for evaluating competitive pressures in the mobile OS market and the app distribution service market. Chapter 6 evaluates on the competitive environment of the mobile OS market, describing the bargaining position of the mobile OS provider and clarifying the state of transaction between the enterprises in the mobile OS market based on the questionnaire survey results. Chapter 7 evaluates on the competitive environment of the app distribution service market, describing the bargaining position of the app store operator and clarifying the state of transaction between the enterprises in the app distribution service market based on the questionnaire survey results.
Views from the Antimonopoly Act (AMA) and proposals from the competition policy	Chapter 8 examines the concerns over the competition in each market based on Chapter 6 and Chapter 7. Chapter 9 summarizes the measures to promote competition based on the descriptions in Chapter 8.
Conclusion	Chapter 10 provides the summary of this report.

2. Survey method

⑴ Questionnaire survey for app developers and consumers

A. Questionnaire survey for app developers

A questionnaire survey was conducted to the app developers providing apps on app stores regarding transactions with app store operators and the current status of other app distribution routes. The outline is as follows.

Target: App developers

Method: Web questionnaire survey

Implementation period: March 4, 2022 to March 24, 2022

Number of enterprises the questionnaire was sent to: 9,562[4]

Number of Respondents: 596

Response rate: 6.2 percent

B. Questionnaire survey for consumers

A questionnaire survey was conducted to the consumer testers of a research company regarding the usage of smartphones and smartphone-related services. The outline is as follows.

Target: Consumers using smartphones

Method: Online questionnaire (commissioned survey)

Implementation period: February 7, 2022 to February 16, 2022

Number of respondents: 2,000 (1,000 iOS users and Android users respectively)

(2) Voluntary interview

The JFTC interviewed 23 business operators and business associations in a wide range of industries, including smartphone manufacturers, app developers, and providers of products and services used in conjunction with smartphones.

In addition, the JFTC received answers to written questions from the two main mobile OS providers (Google and Apple).

Also, the JFTC interviewed 3 experts who have specialized knowledge about mobile OS market and app distribution service market[5].

(3) International cooperation

Overseas competition authorities have also conducted market studies on mobile OS and app stores. Through the process of compiling this report, the JFTC exchanged opinions with overseas competition authorities (the Australian Competition and Consumer Commission, the UK Competition and Markets Authority, and the Directorate-General for Competition of the European Commission), which are conducting market studies in the same manner as the JFTC, in order to refer to the discussions in each country and region.

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4 Among the app developers, 9,562 developers were chosen as subjects, whose contact information the JFTC was able to obtain based on information published on the app store or website.

5 Apart from above, 22 opinions related to mobile OS were submitted through the contact point for providing information on the state of transaction related to digital platform providers and their use.

Chapter 2. Increasing Importance of Smartphones to Consumers

[Summary of this chapter]

- The smartphone usage rate and time spent on them by consumers in Japan are on the rise year by year. The smartphone usage rate reached 95.3% in 2021.
- The market size of digital content and services (e-publishing services, paid music and video distribution services, online games, and other services) is expanding. Given the trend that the smartphone usage rate is increasing, particularly, the market size of digital content and services via smartphones seems to be expanding.
- In addition, the market size of product sales via smartphones continues expanding, and the main device used for e-commerce seems to be shifting from PCs to smartphones.
- Furthermore, goods and services that create new value by linking with smartphones (for example, smartwatches and smart speakers) have also emerged.
- Smartphones have functions that go beyond the use of conventional mobile phones ("feature phones") and are used in a wide range of usage such as information search, watching video contents, using SNS and playing online games. Considering these characteristics and their wide range of usage together with the fact that they are always carried around not only at home but also outside, no device can be completely replaced by a smartphone at present.

1. Increase in smartphone usage rate and smartphone usage time by consumers

The smartphone usage rate in Japan is on the rise year by year. According to the "FY2021 Survey Report on Usage Time of Information and Communications Media and Information Behavior[6]" published by the Institute for Information and Communications Policy (IICP) of the Ministry of Internal Affairs and Communications (MIC), the smartphone usage rate (of all age groups[7]) has increased significantly from 32.0% in 2012 to 95.3% in 2021 (Figure 2-1).

The amount of time spent on smartphones is also increasing year by year. The amount of time spent on the Internet[8] with mobile devices (smartphones and feature phones[9]) (of all age groups) has increased from 37.6 minutes in 2012 to 110.0 minutes in 2021 on weekdays, and from 53.7 minutes in 2013 to 126.8 minutes in 2021 on weekends (Figure 2-2).

A comparison of the time spent on the Internet between mobile devices and PCs shows that, in 2021, consumers spent 57.6 minutes on PCs to 110.0 minutes on mobile devices on weekdays and 30.5 minutes on PCs to 126.8 minutes on mobile devices on holidays, which indicates that

6 The IICP. 2022. "FY2021 Survey Report on Usage Time of Information and Communications Media and Information Behavior."
https://www.soumu.go.jp/main_content/000831290.pdf

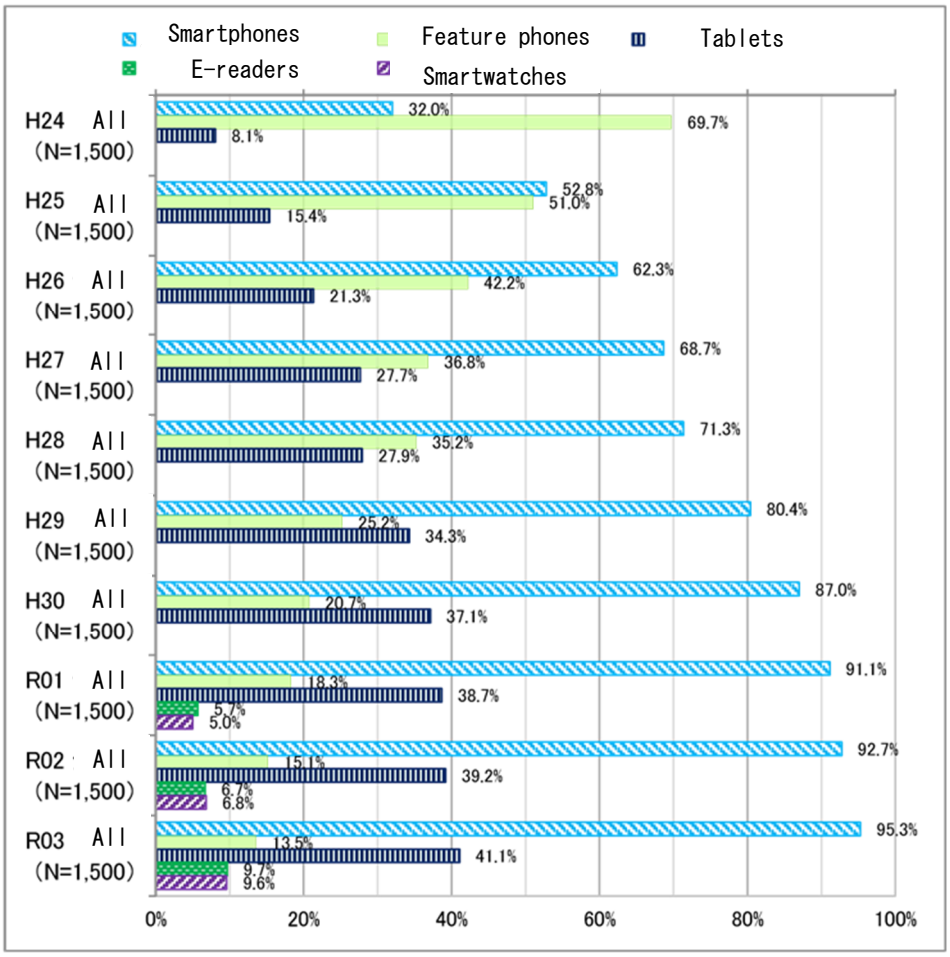
7 The survey was conducted among 1,500 men and women between the ages of 13 and 69.

8 Usage hours are total hours that were calculated by location type (home, work, school, on the move, others).

9 Feature phones indicate not smartphones but mobile phones which have various functions such as cameras, "Osaifu-Keitai," one-segment broadcasting viewing functions as well as calling function. As shown in Figure 2-1, the usage rate of feature phones (of all age groups) fell sharply from 69.7% in 2012 to 13.5% in 2021.

more mobile devices are used than PCs when they access various services over the Internet (Figure 2-2.).

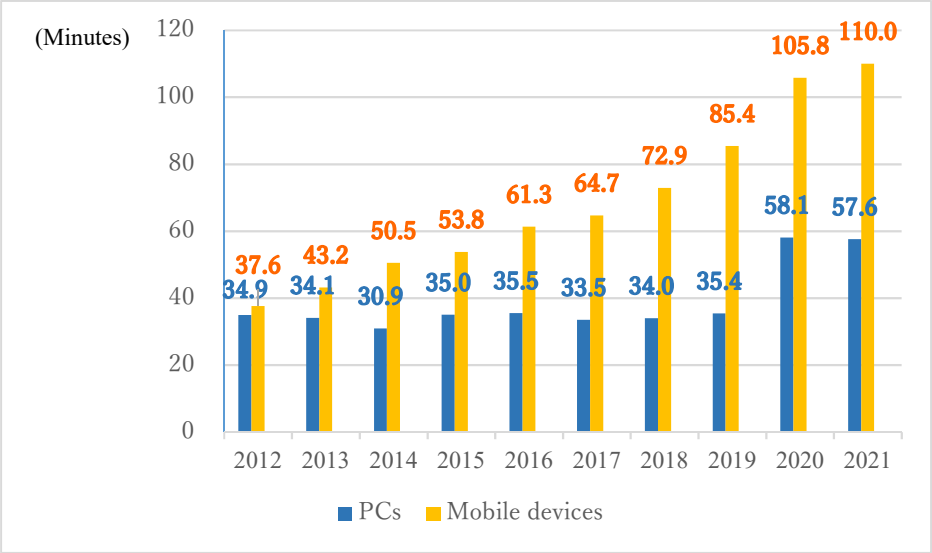
Figure 2-1. Usage rate by the device over time (of all age groups)[10]



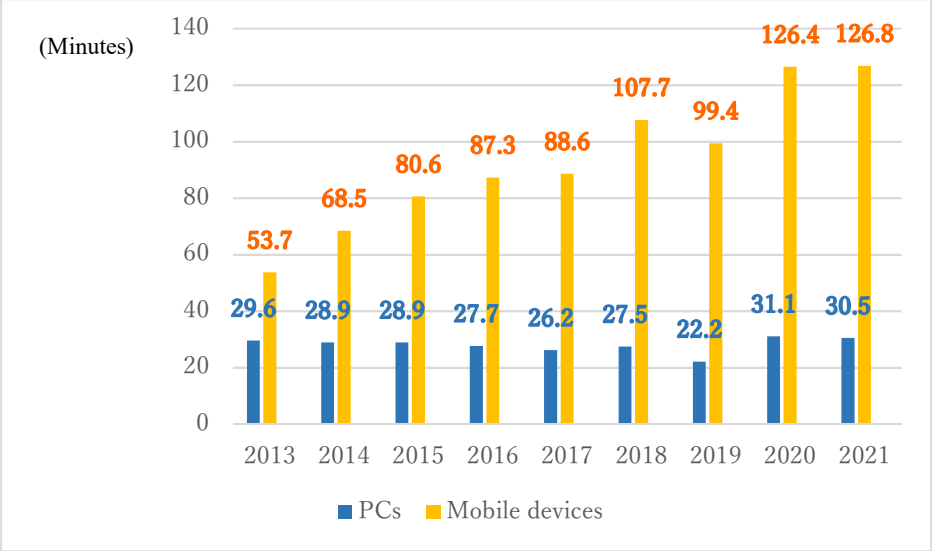
10 The IICP. 2022. "FY2021 Survey Report on Usage Time of Information and Communications Media and Information Behavior," Diagram 4-2-1.

Figure 2-2. Average Internet usage time with major devices over time (of all age groups)[11]

[Weekdays]



[Holidays]



2. Expansion of digital content and services provided on smartphones

⑴ Expansion of the market size of digital content and services

The market size of digital content and services such as e-publishing services, paid music and video distribution services, and online games are expanding. According to the report on the FY2021 E-Commerce Market Survey by the Ministry of Economy, Trade and Industry

11 Prepared by the JFTC based on the IICP. 2022. "FY2021 Survey Report on Usage Time of Information and Communications Media and Information Behavior."

(METI)[12], all the following fields have expanded in 2021 (Figure 2-3.).

- The online game market grew 7.82% year on year to JPY 1,612.7 billion.
- The e-publishing market (eBooks and eMagazines) grew 24.23% year on year to JPY 567.6 billion.
- The paid video distribution market grew 18.47% year on year to JPY 379.1 billion.
- The paid music market grew 14.30 percent year on year to JPY 89.5 billion.

Although the breakdown between via PCs and smartphones in each market above is unknown, it is likely that the market for digital content and services via smartphones is expanding, considering that the usage time of mobile devices such as smartphones is longer than that of PCs and that PC ownership per household is declining[13], while consumer smartphone usage is on the rise, as mentioned above.

Figure 2-3. The B2C EC market size of the digital field[14]

Classifica		2020	2021
		Market scale (JPY billion) Bottom: Year over year (YoY)	Market scale (JPY billion) Bottom: Year over year (YoY)
①	E-Publishing (eBooks and eMagazines)	456.9 (36.18%)	567.6 (24.23 %)
②	Paid music	78.3 (10.80%)	89.5 (14.30%)
③	Paid video	320.0 (33.10%)	379.1 (18.47%)
④	Online games	1,495.7 (7.50%)	1,612.7 (7.82 %)
⑤	Other	110.5 (6.00%)	117.1 (6.00%)
	Total	2,461.4 (14.90%)	2,766.1 (12.38 %)

12 The METI. 2022. “The Report on the FY2021 E-Commerce Market Survey.” https://www.meti.go.jp/press/2022/08/20220812005/20220812005-h.pdf

13 The ownership of PCs per household hit a peak of 87.2% in 2009, and it has been declining, with 69.1% in 2019, 70.1% in 2020, and 69.8% in 2021.
The MIC. 2022. “Results of FY2021 Communications Usage Trend Survey.” https://www.soumu.go.jp/johotsusintokei/statistics/data/220527_1.pdf

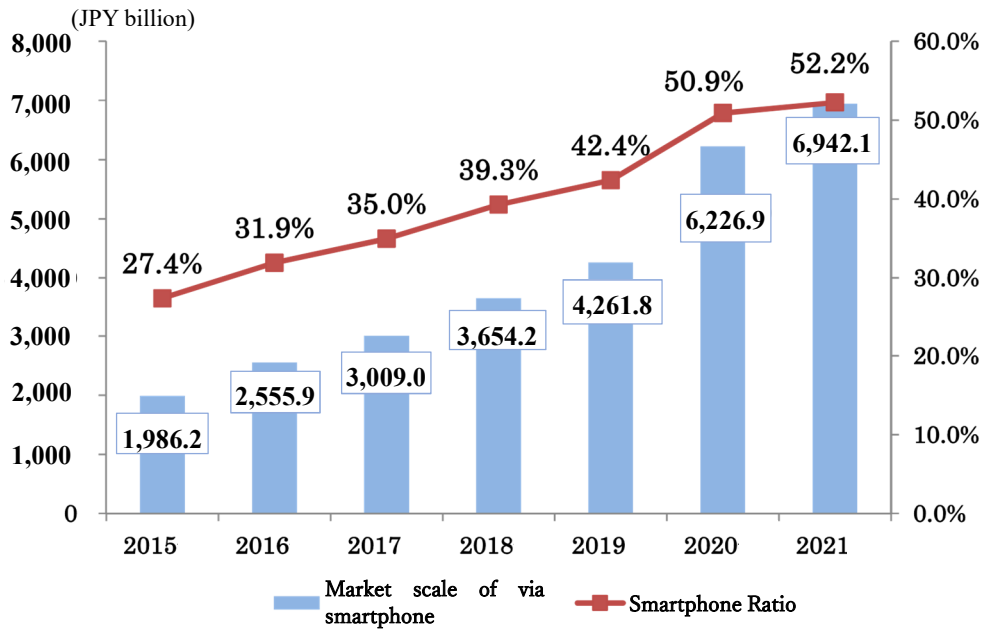
14 The METI. 2022. “The Report on the FY2021 E-Commerce Market Survey,” Diagram 4-24.

⑵ Increase in the market size of smartphone-based sales and the rate of smartphone-based sales

The expansion of the market via smartphones is not limited to sales of digital content and services but also product sales via smartphones.

According to the Report on the FY2021 E-Commerce Market Survey by the METI, the market size of B2C EC (e-commerce for consumers) via smartphones in the product sales field in 2021 was JPY 6,942.1 billion, as shown in Figure 2-4. This amount is equivalent to 52.2% of the B2C EC market for product sales. Also, compared to 2020, the market size of the B2C EC for product sales via smartphones in 2021 increased by JPY 715.2 billion, with a growth rate of 11.5%. The market size of the B2C EC in the product sales field has increased to JPY 1,053.2 billion from the previous year, and the shift from PCs to smartphones seems to be progressing further in the e-commerce market as its scale expands.

Figure 2-4. The transition of the B2C EC market scale of product sales via smartphones over the last seven years[15]



3. Expansion of goods and services used in conjunction with smartphones

Furthermore, with the spread of smartphones, the provision of new goods and services that can be used in conjunction with smartphones is expanding.

One of them is wearable devices used for health management such as exercise and sleep.

15 The METI. 2022. "The report on the FY2021 E-Commerce Market Survey," Diagram 4-15

Regarding a smartwatch, a wristwatch-type wearable device, some of its functions can be used without linking with a smartphone, but its functions will expand by linking with a smartphone. In the smartwatch field, Apple is the leading company Apple developed the Apple Watch, and launched it in nine countries, including Japan in 2015[16].

In addition to wearable devices, a smart speaker, which makes various services (e.g. music playing, Internet searching, news reading and more) available through voice recognition, has appeared with the advancement of AI technology. In order to use a smart speaker, users need to prepare a smartphone or other device, to install the app on the device, and to do the settings. Amazon and Google are leading the way in the smart speaker field[17], with Amazon launching the "Amazon Echo" in 2014, and Google launching the "Google Home" in 2016, both of which entered the Japanese market in 2017.

In addition, new goods called "smart tags," which are attached to a consumer's belongings, can be used to accurately identify the location of them by linking with a smartphone. The "Tile," a smart tag developed by Tile Inc. in the United States, was launched in Japan in 2017, and the "Air Tag," developed by Apple, was launched in Japan in 2021.

Aside from them, new goods that can be linked to smartphones, such as smart locks (i.e. goods that enable a smartphone to control opening and locking without a key) and smart remote controls (i.e. goods that allow a smartphone to operate various home appliances, and lighting), have also emerged.

In this way, the provision of goods and services that create new value by linking with smartphones is also expanding.

4. Positioning of smartphones to consumers

Smartphones have rapidly replaced feature phones, and as mentioned above, their usage rate (of all age groups) exceeded 50% in 2013 and 90% in 2021 (Figure 2-1).

While the compact size of a smartphone makes it highly portable, its touch screen makes it possible not only playing videos on it but also intuitive operation such as magnifying and scrolling. Because of these characteristics, smartphones have functions that go beyond conventional mobile phones such as voice calls and texting using SIM cards[18], and are used in a wide range of usage including information search, viewing websites, watching video contents,

16 The MIC. 2015. "2015 WHITE PAPER Information and Communications in Japan," Part 2, Chapter 4, Section 1. https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/h27/html/nc241130.html

17 The MIC. 2021. "2021 WHITE PAPER Information and Communications in Japan," Part 1, Addendum https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r03/html/nd105210.html

18 A Subscriber Identity Module (SIM) card is a microchip in a mobile phone that connects it to a particular phone network. "Data SIM" refers to a SIM dedicated to data communication, and "Voice call SIM" refers to a SIM that enables both data communication and voice call.

using SNS, and playing online games through downloaded apps and browsers[19].

Given the characteristics of smartphones and their wide range of usage, some devices can be used partially in place of smartphones, but currently no devices can completely replace smartphones. For example, a tablet or PC has similar performance to a smartphone, but they are larger and less portable than a smartphone. Also, they are not always used with a SIM card, so they can't be used interchangeably with a smartphone in terms of calls and other aspects.

Although there are devices which have some of the functions of smartphones, such as wearable devices, smart speakers, and game consoles, there is no device that has all equivalent features and functions to a smartphone.

These tablets, PCs, and other devices do not replace smartphones, but they are used for different purposes according to the characteristics of each device. For example, it is common for consumers to own tablets and PCs in addition to smartphones. As mentioned above, since tablets and PCs are larger than smartphones and may be used without mobile data communication, a smartphone is suitable for consumers to use on their way to someplace or when they are not at home, while a tablet or PC is suitable for occasions when they stay at one place, work long hours or view videos. Similarly, game consoles are generally less portable than smartphones, and some of them do not have functions such as cameras or GPS, which makes smartphones more suitable to use on the way to someplace or when users are not at home. On the other hand, game consoles allow users to play on a larger screen and use a dedicated controller, which makes game consoles more suitable for long-term use without moving.

From the above, it can be said that there is no alternative to smartphones. This is supported by the fact that smartphones have become essential goods for consumers to carry around at home and outside, and despite the availability of other devices, smartphone usage averages over 90% of all generations (99.5% of consumers in their 20s[20]).

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19 According to the IICP's, "FY2021 Survey Report on Usage Time of Information and Communications Media and Information Behavior," the average time spent using the Internet through mobile devices of all age groups on weekdays and holidays respectively is as follows:
19.2 minutes and 15.7 minutes on "e-mail," 17.0 minutes and 18.0 minutes on "blogs and websites," 37.5 minutes and 43.6 minutes on "social media," 35.2 minutes and 48.0 minutes on "webcast," 16.1 minutes and 22.7 minutes on "online social games."
The data shows that smartphones cover a wide variety of usage by consumers.

20 The IICP. 2022. "FY2021 Survey Report on Usage Time of Information and Communications Media and Information Behavior," Chapter 4-4-2.

Chapter 3. Overview of mobile OS, app store, browser, etc.

[Summary of this chapter]

- Among the basic software, there are operating systems developed for smartphones and installed on them (mobile OS), such as Android provided by Google and iOS developed by Apple and installed on iPhones. When a smartphone is shipped, a specific mobile OS is usually pre-installed.
- On a smartphone, there is a layered structure consisting of the smartphone device, the mobile OS, the app store, and native apps. The entire four layers around the mobile OS are called the "mobile ecosystem." The mobile ecosystem is a multi-sided market in which parties from various positions such as consumers, mobile OS providers, app store operators, app developers and smartphone manufacturers participate and get involved mutually.
- This report considers the device layer as the device market, the mobile OS layer as the mobile OS market, and the application layer as the app market. Regarding the app store layer, it is considered as the app distribution service market including other alternatives for consumers to download apps from the app stores operated by Google and Apple.
- For consumers in Japan, the choice of mobile ecosystems is limited to two: An Android-centric ecosystem and an iOS-centric ecosystem.
- When consumers install apps developed to use on a specific mobile OS (native apps), the app store is used primarily. App store operators review native apps to ensure that they meet quality, security, privacy, and other standards.
- On Android devices, in addition to Google's Google Play, it is possible to install an app store operated by other enterprise. On iPhone, only Apple's App Store is pre-installed, and no other app store can be installed.
- As a browser, Apple's "Safari" is pre-installed on iPhone, and Google's "Chrome" on the Android. Apple obligates the use of its "WebKit," a browser engine for iOS, whereas Google does not impose any obligation to use a particular browser engine for Android.
- Apps provided on smartphones and goods and services used in conjunction with smartphones (such as smartwatches) require access to various functions and data on smartphones through APIs offered by mobile OS providers. Therefore, mobile OS providers can control such access.

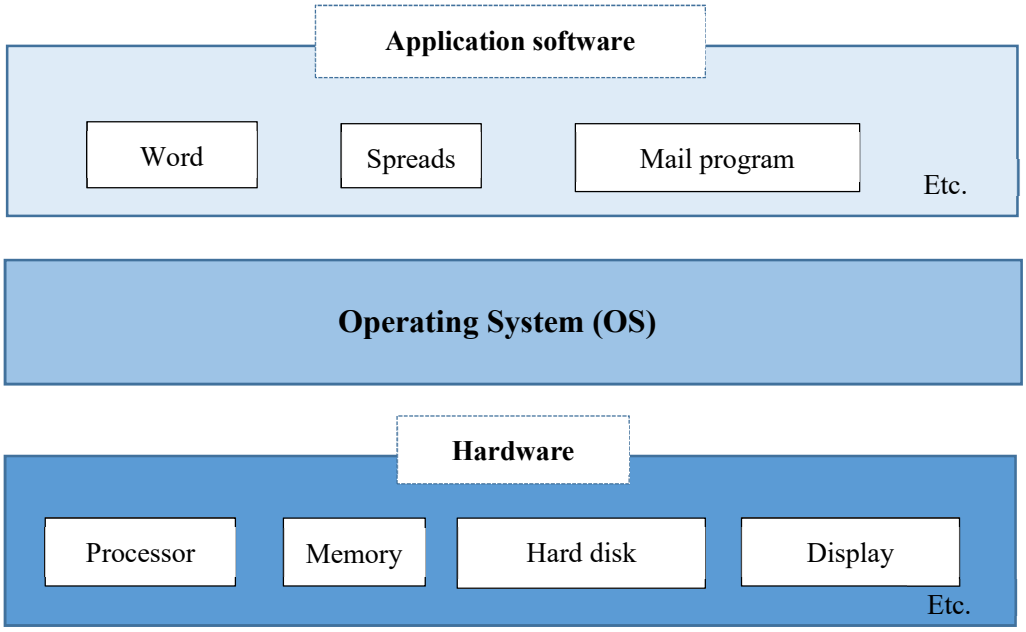
1. Overview of Mobile OS

(1) OS functions and roles

A computer system is a complex system consisting of many elements such as processor, memory, hard disk and display. In order to run a computer, it is necessary to pay attention to the state of all these components and write a program that works properly. To reduce such effort, it is effective to prepare a mechanism that ascertains the state of each of the said components and performs the procedure for controlling them as simply and uniformly as possible. An OS (operating system) is the software to realize such a mechanism[21].

21 Hishida, T., Teranishi, Y., Mineno, H., and Mizuno, T. 2014. "Operating System," Kyoritsu Shuppan, p.2.

Figure 3-1. Configuration of the computer system[22]



An OS is a basic software required to use a computer. For example, a hardware cannot run without an OS, and a variety of application programs (also called application software or application) that run on a computer cannot work without it. In addition, programs for executing application programs are designed for a specific OS and will not work if the OS is different. For this reason, it is important for users to choose an appropriate OS because the application programs that can be used differ depending on the OS selection[23].

The main functions that the OS offers are the management and allocation of the user interface, the application programming interface (API. See 4 below for details), the communication interface, hardware resources (e.g. processors, memory, hard disks, etc.) and software resources (e.g. programs, data, etc.). That is, the user operates the computer system with the user interface and control the execution of the program. The application programming interface is used to create application programs, and the communication interface is used to communicate with other computers. Also, the OS manages and allocates hardware and software resources for users and programs to use[24].

In this way, an OS is equipped with basic functions for operating and managing computer systems, and it is the role of the OS to help users who do not have detailed computer knowledge

22 Prepared by the JFTC based on Noguchi, K., Mitsuki, K., and Shinagawa, T. 2018. "IT Text Operating System (Revision 2)," Ohmsha, Figure 1.1
23 Id. at pp.2-3.
24 Id. at pp.7-9.

make use of computers easily. Originally, the OS was created to enable application programs which were made with programming languages to use various functions in hardware, and to make it easier for humans to operate computers[25].

In addition, as PCs and smartphones become more popular, the personal data of users has become stored on computers. Consequently, the appropriate management of this data has also become an important role of the OS. In particular, now that it is normal for computers to be connected to the Internet, the OS provides functions for smooth data exchange through the Internet and security functions to prevent important data from being damaged or leaked by computer viruses[26].

(2) Mobile OS

As mobile phones become more sophisticated, and a portable computer device with the ability to manage personal information and to be linked to a computer or the Internet is called a smartphone. An OS with enhanced personal information management and network functions has come to be used on smartphones[27]. (In this report, the OS which was developed for smartphones and installed on them is called "mobile OS." Mobile OS does not include a tablet OS.) When a smartphone is shipped, a specific mobile OS is usually pre-installed. Such smartphones can be operated intuitively using touch screens. In addition, various functions and services can be freely added and used by adding apps from app stores offered by mobile OS providers[28].

Regarding mobile OS, Apple's iOS, which is installed on iPhones are available along with Google's Android.

(3) Ecosystem centered on mobile OS

On a smartphone, in order to connect many smartphone users with many enterprises that provide goods and services, a layered structure consisting of smartphone devices, mobile OS, app stores, native apps (apps developed to install and use on specific mobile OS. See 2 below.) is formed, and smartphone users can access digital content and services by using native apps or web apps[29] via browsers (See 3 below.) to access digital content and services.

Figure 3-2 illustrates the layered structure in an ecosystem centered on mobile OS.

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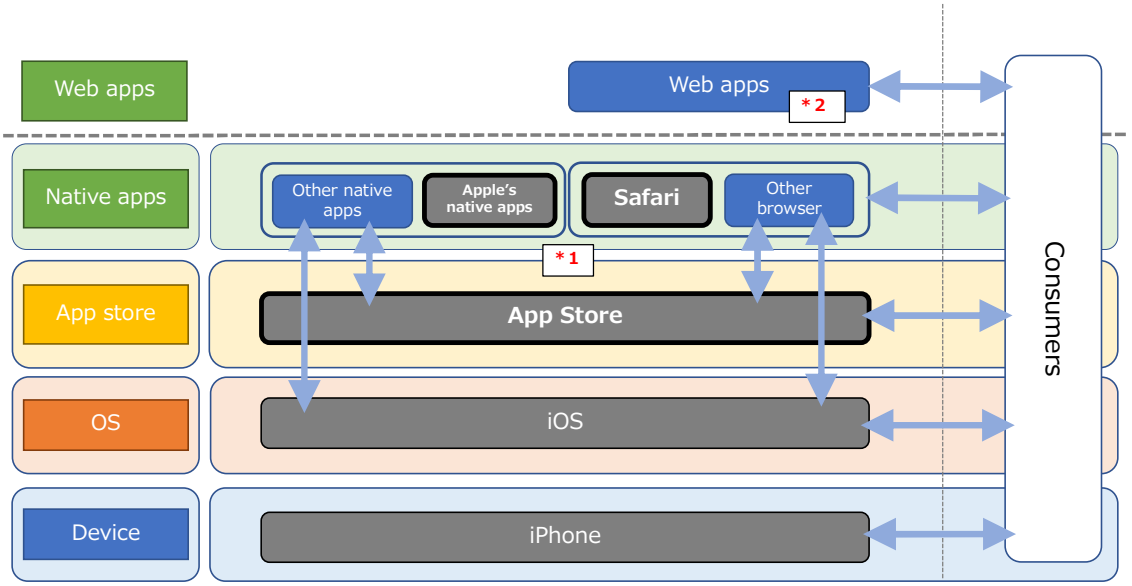
25 Id. at pp.3-4.
26 Id. at p.6.
27 Hishida, T., Teranishi, Y., Mineno, H., and Mizuno, T. 2014. "Operating System," Kyoritsu Shuppan, pp.176–177.
28 The MIC, "For safe and secure Internet use, Information Security Site for the people." https://www.soumu.go.jp/main_sosiki/joho_tsusin/security/basic/service/14.html
29 It refers to an application built with web technology. The user accesses the web server using the web browser to run the application by commands to process and transfer necessary data. It is different from the native app in that it is not installed and used on a smartphone.

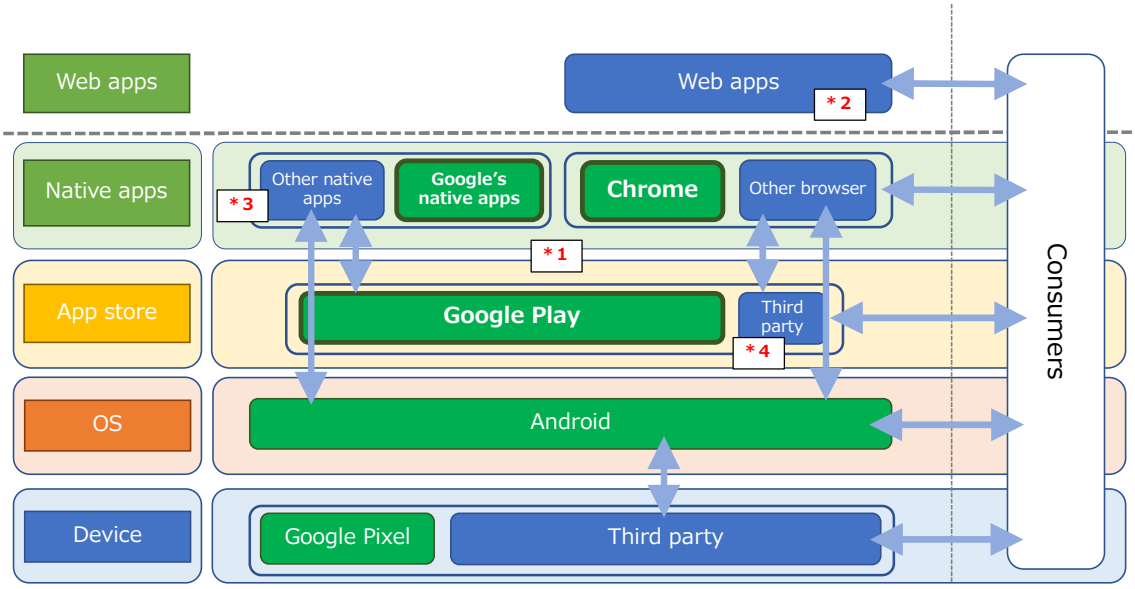
In the device layer, smartphone manufacturers including Google and Apple are suppliers, and consumers using smartphone devices are customers. In the mobile OS layer, mobile OS providers (Google and Apple) are suppliers, and app developers and consumers who use the mobile OS are customers respectively[30]. In the app store layer, app store operators (mainly Google and Apple) are suppliers, and app developers and consumers who use the app stores are customers respectively. In the application layer (native apps and web apps. The same shall apply hereinafter.), in addition to Google and Apple, many other app developers are suppliers, and consumers who use the apps are customers.

30 As for Android, smartphone manufacturers selling smartphone devices with a mobile OS are also customers of the mobile OS.

Figure 3-2. Layered structure in an ecosystem centered on mobile OS



(*1) The App Store, Safari, and some Apple's native apps are preinstalled on the device.
(*2) In fact, consumers access web apps via the browser.



(*1) Google Play, Chrome and some Google's native apps are pre-installed on the device.
(*2) In fact, consumers access web apps via the browser.
(*3) Some other native apps can be sideloaded via the browser.
(*4) Third-party app stores are either pre-installed on the device or sideloaded via the browser.

In this report, the entire four layers centered on the mobile OS are referred to as the mobile ecosystem. As mentioned above, this mobile ecosystem is established by various parties such as consumers, mobile OS providers, app store operators, app developers and smartphone manufacturers getting involved with each other. Also, each layer in the mobile ecosystem is a multi-sided market in which various parties participate.

Taking advantage of this nature, some services are available free of charge to some users in certain markets, such as consumers using the app stores, in order to attract more users to the mobile ecosystem. Meanwhile, to recover the cost of providing services in these free markets, different markets within the mobile ecosystem are monetized in various ways, including smartphone sales, app sales, in-app payments, and digital advertising. It's a revenue-generating business model for the entire mobile ecosystem.

Currently, Google's Android and Apple's iOS account for nearly 100% of the mobile OS on smartphones sold in Japan. Consequently, the choice of mobile ecosystem for consumers in Japan is limited to the following two; mobile ecosystem centered on Android ("Android Ecosystem") and that of iOS ("iOS Ecosystem").

In the mobile ecosystem, there are mainly two ways for consumers to use digital content and services such as maps, search;

(i) To use them through native apps downloaded from the app stores, etc.

(ii) To use them through web apps via browsers

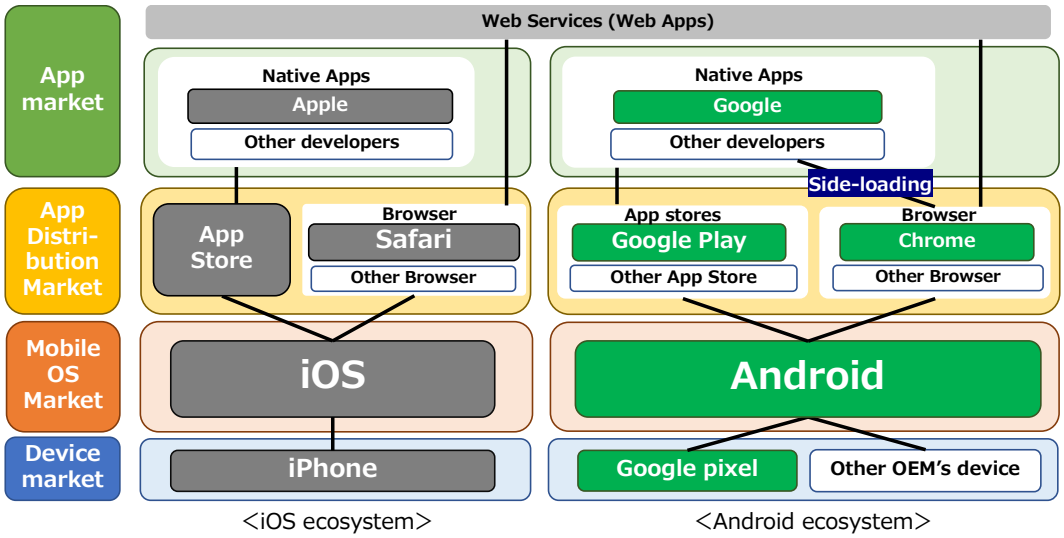
The app store and browser have become important access point for users to acquire or use native and web apps.

This report considers the smartphone device layer as the device market, the mobile OS layer as the mobile OS market, and the application layer as the app market[31]. Regarding the app store layer, it is considered as the app distribution service market including other alternatives to downloading apps from the app stores operated by Google and Apple for customers (see Chapter 7 for details)[32].

31 In addition, the market for products used in conjunction with smartphones is regarded as the "app market and other smartphone-related markets" together with the app market.

32 The "market" in this report was set for the purpose of conducting this market study. Any "particular field of trade" applicable to the AMA will be defined in accordance with individual cases.

Figure 3-3. The view of the market in this report



2. Overview of the app store

(1) Functions and roles of the app store

Apps used on smartphones can be broadly divided into native apps and web apps.

App stores are the primary means when consumers install native apps on their own[33]. The app store is a platform to distribute native apps, providing a place for transactions between app developers and consumers. In the app store, many app developers offer native apps, and consumers can view information about native apps in the app store and download them for free or for a fee.

App store operators review native apps that the app developers wish to distribute to ensure that those apps meet quality, security, privacy and other standards. The only native apps that pass the review will be listed on the app store.

(2) Overview of the app stores in Android and iOS Ecosystems

A. The app stores in Android Ecosystem

In addition to Google Play, it is possible to install other app stores, such as the Amazon Appstore and Samsung Galaxy Store on Android devices (Hereinafter, it indicates Smartphone devices on which Android is installed.) (See 7-1 below).

Developers who provide apps on Google Play agree to the Google Play Developer Distribution Agreement[34]. Under the Agreement, they agree to comply with the Google Play

33 Some native apps are pre-installed on smartphones at the time of shipment (app store apps, browser apps, email apps, map apps, and more).

34 Google Play Developer Distribution Agreement (last updated: October 3, 2022) https://play.google.com/intl/ALL_jp/about/developer-distribution-agreement.html

Developer Program Policy[35]. Google reviews all apps for compliance with the Developer Program Policy. App developers can distribute their apps on Google Play after the apps pass the review. App developers have the freedom to choose their business model, such as whether to charge for downloading apps from Google Play or for using digital content within the app.

B. The app stores of iOS Ecosystem

On iOS devices (iPhone), only Apple's App Store is pre-installed as an app store. Unlike Android devices, it is not possible to install an app store other than the App Store[36].

Apple has published guidelines with which apps posted on the App Store shall comply (App Store Review Guidelines)[37], allowing app developers to develop and sell apps as well as sell digital content and services within apps.

3. Overview of the browser

(1) Functions and roles of the browsers

A browser is an application software that allows you to browse websites and operate web apps via the Internet with a computer or smartphone.

Consumers can access a variety of Internet services through a browser (Hereinafter, Internet services such as web apps and websites accessed through a browser are referred to as "web services".). For example, when a consumer wants to view a map or search a website on their smartphone, they can either use a native app installed on their smartphone or a web app from their browser. By using web services through browsers, especially web apps, consumers may be able to receive the same services as native apps in terms of content and usability. Since web services are provided on a browser, consumers can use the same web services on the same browser regardless of the mobile OS they use.

In order to provide native apps to both Android and iOS users, app developers need to develop apps for Android and iOS separately. On the other hand, when providing web apps, there is no need to develop apps for Android and iOS separately. In addition, native apps are usually provided through the app store and they need to be reviewed by the app store operator, but web apps do not need to be reviewed by the app store. For app developers, web apps have the advantage that the cost spent on development and app review is lower than that of native apps, and that developers have more freedom in the timing of providing the app and its contents.

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35 Google Play Developer Program Policy (last updated: December 14, 2022)
https://support.google.com/googleplay/android-developer/answer/12867690#target_api

36 However, it is possible to use non-native app stores on iPhone through a browser.

37 App Store Review Guidelines (last updated: October 24, 2022)
https://developer.apple.com/jp/app-store/review/guidelines/

To give a specific example of browsers for smartphones, Apple's “Safari” and Google's “Chrome” are pre-installed on iPhone and the Android device respectively. In addition to mobile OS providers, several browser providers such as Samsung and Huawei provide browsers for smartphones, and their browsers are pre-installed on their Android devices.

⑵ The influence of mobile OS providers on browser development

In developing a browser, a “browser engine” is required to convert and display contents written in a computer language into the contents and formats that are easily recognized and read by the user. Mobile OS providers Google and Apple each provide one of these browser engines.

Apple mandates that “WebKit,” a browser engine it provides is used as the browser engine for iOS, which requires browser providers to use WebKit to develop their browsers[38]. As a result, browsers of other providers will be subject to restrictions based on WebKit specification imposed by Apple.

For the browser engine, Google runs an open-source browser project called Chromium[39] and provide Blink, a free open-source browser engine[40]. Google does not require the use of any particular browser engine on Android, which makes it possible for the providers to develop browsers using any browser engine.

4. Access to various functions on smartphones

Apps provided on smartphones and goods and services used in conjunction with smartphones (wearable devices such as smartwatches and earphones, smart speakers, and home appliances such as electric lights and TVs, etc.) access various functions and data of smartphones. Mobile OS providers provide API (Application Programming Interface)[41] to app developers and providers of goods and services used in conjunction with smartphones. These apps, goods and services access various functions and data on smartphones via API, including communication functions such as Bluetooth[42], NFC[43], camera, and location data using GPS.

Access to these various functions on smartphones is controlled by mobile OS. Therefore, mobile OS providers can control such access via mobile OS.

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38 App Store Review Guidelines 2.5.6
39 Google Chromium Project
https://www.chromium.org/chromium-projects/
40 Blink
https://chromium.googlesource.com/playground/chromium-org-site/+/refs/heads/main/blink/index.md
41 API makes the functions and data, etc. of a certain software available to other software. For smartphones, APIs are available for each function, for example, a camera API that allows integration of a photo-taking function into the app, and a GPS API that allows the use of location data.
42 Communication standard for wireless data communication in a short distance
43 Communication standard for wireless data communication in a very short distance (within a few centimeters)

(Reference) Specific examples of goods and services used in conjunction with smartphones

(i) Smartwatch

Smartwatches are wearable devices that not only function as simple watches, but also have health management functions such as GPS, measuring heart rate and sleep. By connecting to a smartphone via Bluetooth, it is possible to receive notifications, check calls and emails, play music, and control the camera remotely. Recently, many smartwatches with NFC and electronic payment support are on sale.

(ii) Smart tag

Smart tags are devices that attach to a consumer's belongings and used to locate them on a smartphone if they are lost. Smart tags are provided by a variety of enterprises and use communication functions such as Wi-Fi, GPS, Bluetooth, and UWB to locate the tag which can then be checked from a smartphone. Products that provide location information not only from the owner's smartphone but also from other people's devices are also emerging (Hereinafter, the system that uses these information and functions to search for the desired smart tag is referred to as the "search network."). Companies offering smart tags have often been relatively small, such as startups, but since smartphone manufacturers such as Apple and Samsung have begun to offer them, the market may fluctuate significantly.

(iii) Functions using short-range wireless communication

Smartphones offer a variety of functions using Bluetooth, NFC, and other short-range wireless communications. The main ones are payment services, pairing with peripherals, and data communication. By linking the device to credit cards or electronic money in advance, payments can be made easily by simply holding the device over. FeliCa, the most widespread NFC standard in Japan, is also used at station ticket gates, etc. NFC is also used to read passports and "My Number Card" information on smartphones.

Other uses include the ability to pair with peripherals such as Bluetooth speakers. The passwords that would normally need to be entered or set are no longer required.

In addition, data communication functions using short-range wireless communication, such as Nearby Share[44] on Android and AirDrop on iOS, are provided. For example, if you want to share a contact or URL with someone nearby, data can be exchanged between devices equipped with the same functionality without sending a message.

44 The Keyword "How we're making it easier to share files with nearby devices" (September 8, 2022) https://blog.google/products/android/better-together-nearby-share/

(iv) Voice assistant (Smart speaker)

The linkage functions described above were based on the use of external communication functions such as Wi-Fi and Bluetooth, but voice assistant is a linkage function in a broad sense.

Typically, input such as touch and swipe or input devices such as keyboard and mouse were used to operate and input smartphones and computers, but improved voice recognition made it possible to operate and input by voice. And with the introduction of voice assistants for interactive voice operations, smart speakers equipped with voice assistants, not only being installed in smartphones and PCs, are becoming popular. As a result, what has been achieved with smartphones can now be realized with smart speakers alone, and what can be done in conjunction with home appliances and other devices has further increased.

Chapter 4. Major Mobile OS Providers and App Store Operators

[Summary of this chapter]

- In terms of mobile OS share in Japan, Android devices accounted for 53.4% and iPhones (iOS) for 46.6% based on the number of devices used (2022). In terms of market share based on page view, Android accounted for 32.76% and iOS for 67.11% (December 2022).
- Regarding the share of app stores in Japan, the ratio of Google Play to App Store sales was approximately 4 to 6 in 2021. Since no other app store can be installed on iOS, the App Store's share of the iOS ecosystem is 100%. According to the consumer survey, Google Play's share of the Android ecosystem is 97.4%.
- As Google's primary source of revenue is digital advertising (especially search advertising), it is important for Google to make more people to use its services, particularly its search service. While Android is licensed as open source, Google may require smartphone manufacturers that make Android devices, if they pre-install Google Play, to pre-install other Google's apps such as Chrome and Google Search and/or to set those apps as default.
- Apple's primary source of revenue is the sale of iPhones and other devices. Apple does not provide iOS to other companies and limits the native app store available for iOS to its own App Store. In other words, it vertically integrates the smartphone device, mobile OS, and app store layers of the iOS ecosystem. On the other hand, Apple has adopted an open strategy for the app layer to attract third-party developers, while providing its own services.
- Google and Apple, which provide mobile OS and operate app stores, are expanding their businesses into smartphone-related areas by providing goods and services that are used in conjunction with smartphones such as smart watches and smart speakers, etc. According to the consumer survey, smart watches and voice assistants (including smart speakers) are on the way to widespread use in Japan.
- In general, when a particular enterprise provides services related to multiple layers at the same time (vertical integration), there is a possibility that efficiency will be improved, and the seamless provision of services across layers may improve consumer convenience. On the other hand, vertically integrated enterprises may give preferential treatment to their related products and services, which could eventually lead to lower quality and higher prices of products and services.

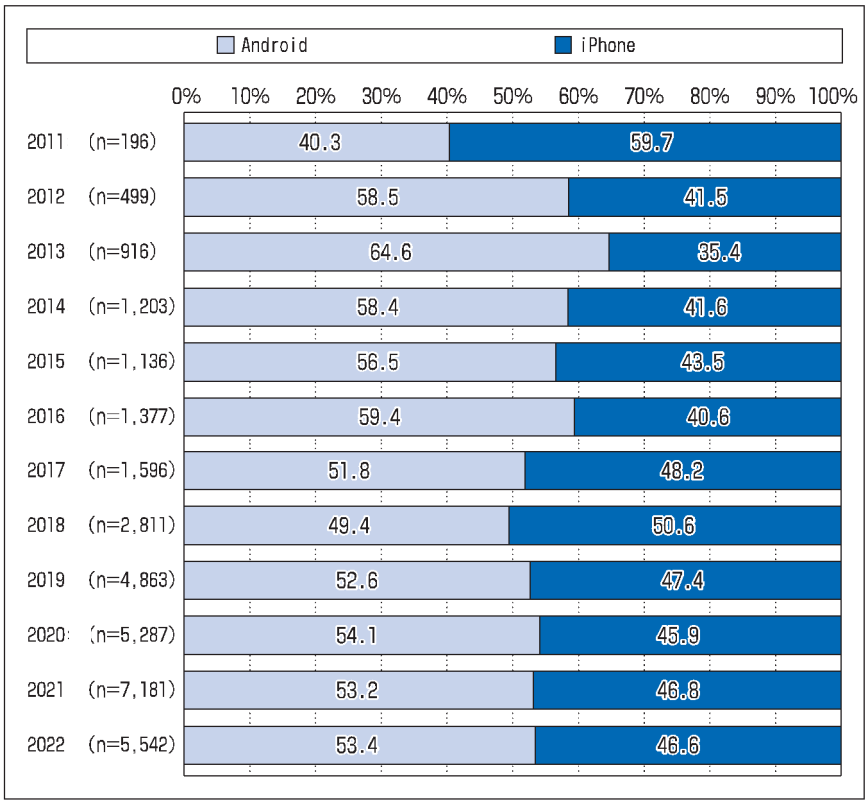
1. Share of mobile OS and app stores in Japan

First, regarding the share of mobile OS, according to the results of a survey of the mobile phones that consumers actually use (the most frequently used mobile phone), as shown in Figure 4-1, the usage ratio in 2022 were 53.4% for Android devices and 46.6% for iPhones (iOS)[45].

45 The respondents were asked to answer one of the following as their most frequently used mobile phone, and those who answered Android or iPhone were selected to calculate the percentage.
- Feature phones (conventional mobile phones except those for seniors (including PHS))
- Android
- iPhone

According to this survey, a small number of people use mobile devices except Android devices and iPhones (iOS)[46]. Even including those, 51.2% use Android and 44.6% use iPhone (iOS), while only 4.2% use smartphones other than Android and iPhone (iOS)[47].

Figure 4-1. Share of Android and iPhone (iOS) based on the number of devices used in Japan



Note: Responded by Android users and iPhone users

There is also a survey for mobile OS share by measuring the number of page views from each mobile OS on web pages with embedded measurement tags. According to StatCounter (Figure 4-2)[48], which uses this method, Android's share was 32.76% and iOS's share was 67.11% (measured

- Mobile phones for seniors
- Other

Source: White Paper on Mobile Society (2022 edition), Mobile Society Research Institute, NTT DOCOMO, INC. https://www.moba-ken.jp/whitepaper/wp22/pdf/wp22_all.pdf

46 Those who chose the following three options as their most frequently used mobile phone.
- Smartphones other than Android and iPhone such as Windows Mobile
- Smartphones for seniors
- Tablet (AQUOS PAD, ARROWS Tab, iPad, etc.) with a SIM card

47 Compiled by the JFTC based on White Paper on Mobile Society (2022 edition).

48 Statcounter webpage: https://gs.statcounter.com/os-market-share/mobile/japan
The number of page views for each device is not uniform, and the factor is thought to be causing a difference from the share based on the number of devices used.

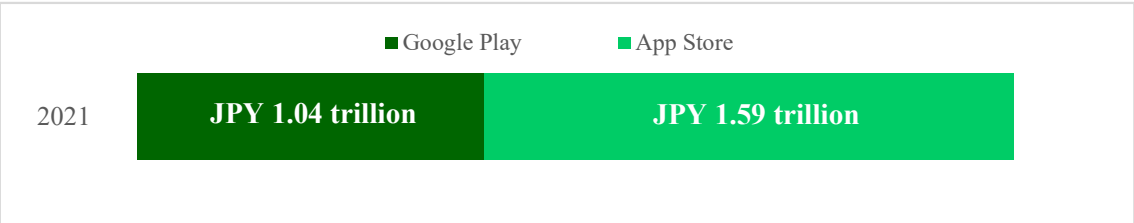
in December 2022).

Figure 4-2. Share of Android and iPhone (iOS) based on the number of page views in Japan

As shown in Figure 4-3, in 2021, sales of Google Play and App Store in Japan (including in-app purchases as well as app sales) were approximately $9.5 billion (JPY 1.04 trillion) and $14.5 billion (JPY 1.59 trillion) respectively. The ratio of Google Play to App Store sales was approximately 4 to 6.

As mentioned in Chapter 3-2, since app stores except App Store are not available on iPhones, the share of App Store in the iOS ecosystem is 100%. Although the Android ecosystem allows the installation and use of app stores other than Google Play, according to the consumer survey shown in Figure 7-5, Google Play accounted for 97.4% of the ratio of the amounts of native apps downloaded to smartphones currently used by Android users.

Figure 4-3. Sales of Google Play and App Store in Japan[49]



2. Business models of Google and Apple

As mentioned in Chapter 4-1, Google and Apple account for almost all share of mobile OS and app stores in Japan. Therefore, this section outlines the business models of both companies.

(1) Google's business model

Google's primary source of revenue is digital advertising (particularly search advertising), which accounts for the majority of its revenue[50]. Google can collect data about consumers by letting them use its search service and other services, and such data is the source of the competitive power of its search advertising business. Google also has contact points with a variety of users through YouTube, a video sharing platform, and it is said that powerful media such as YouTube supports its competitive power in display advertising business.

Therefore, in order to generate revenue from its digital advertising, it is important for Google to make more people use its overall services including its search services and YouTube. On the other hand, Google's revenue from the sale of its own device (Google Pixel) is not a significant portion of its revenue. The consumer survey shows that 4% of Android users use Google Pixel.

The following graph shows Google's revenue structure based on financial results published by Alphabet, Google's parent company.

49 Created by the JFTC based on the Sensor Tower 2022-2026 Mobile Market Forecast. Since sales in 2021 are calculated in U.S. dollars, the JFTC converted those sales into Japanese yen based on the dollar/yen exchange rate of JPY109.89 per dollar in the "Trading Status in the Tokyo FX Market (during 2021)" prepared by the Financial Markets Department, Bank of Japan. This sales amount includes sales on tablets as well as sales on smartphones.
Sensor tower 2022-2026 Mobile Market Forecast
https://go.sensortower.com/rs/351-RWH-315/images/Sensor-Tower-2022-2026-Market-Forecast.pdf

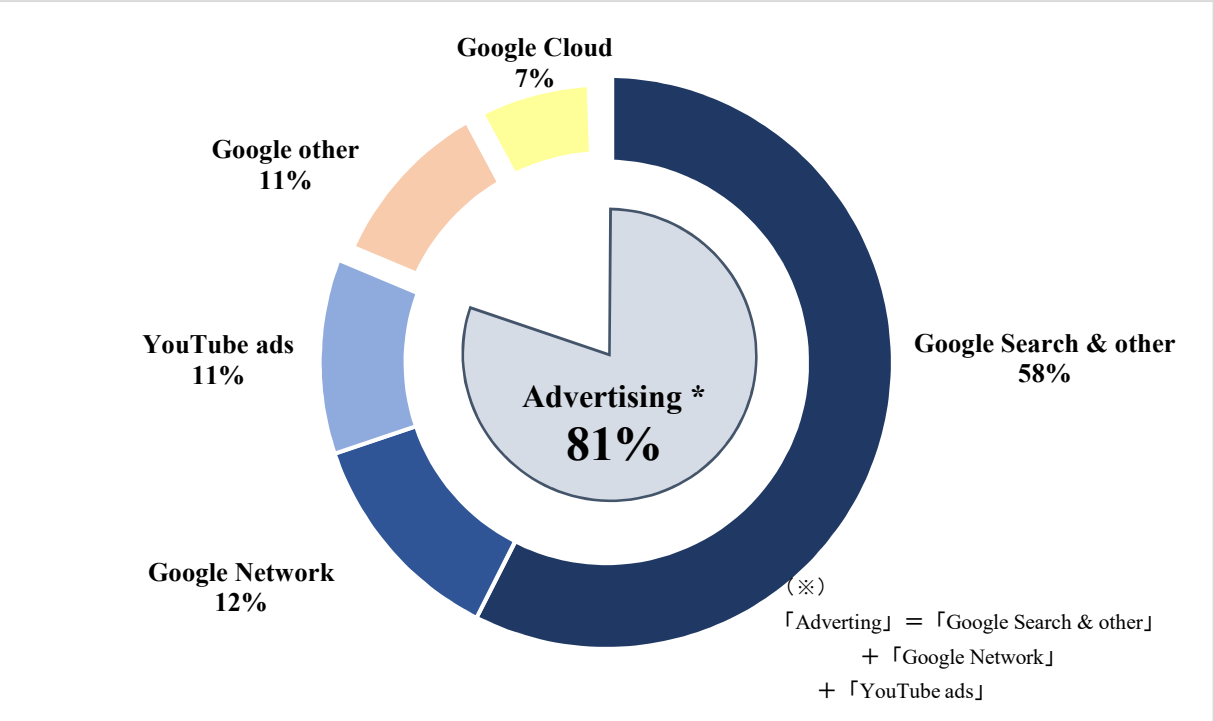
50 Alphabet (Google's parent company) 2021 Annual Report (February 1, 2022)
https://abc.xyz/investor/static/pdf/2021_alphabet_annual_report.pdf?cache=3a96f54

Figure 4-4. Total annual revenue of Alphabet (Google's parent company) from 2019 to 2021[51]

	Year Ended December 31,		
	2019	2020	2021
Google Search &other	$ 98,115	$ 104,062	$ 148,951
YouTube ads	15,149	19,772	28,845
Google Network	21,547	23,090	31,701
Google advertising	134,811	146,924	209,497
Google other	17,014	21,711	28,032
Google Services total	151,825	168,635	237,529
Google Cloud	8,918	13,059	19,206
Other Bets	659	657	753
Hedging gains (losses)	455	176	149
Total revenues	$ 161,857	$ 182,527	$ 257,637

* Unit: million dollars. Total annual revenue in 2021 was $257.6 billion.

Figure 4-5. Google's revenue structure (2021)



Android is licensed as open source. Google licenses a set of Android applications to smartphone manufacturers (Original Equipment Manufacturers. Hereinafter referred to as "OEM") that produce Android devices under the Mobile Application Distribution Agreements (hereinafter referred to as "MADA"). Under MADA, OEMs can pre-install a set of Google Mobile Service (hereinafter referred to as "GMS") applications, including Google Play,

51 Alphabet (Google's parent company) 2021 Annual Report (February 1, 2022)

Chrome, Google Search, Gmail, Google Maps and YouTube, on Android devices at no cost. OEMs who have entered into MADA can choose whether or not to pre-install a set of Google apps on some or all of their devices. If an OEM decides to enter into MADA and pre-install GMS apps, users will not be able to remove some GMS apps from the OEM devices. According to Google, this is due to technical reasons. Since these apps support functionality across Android devices, removing them would have a variety of negative effects for users and developers, as well as increase support costs for OEMs and telecommunication carriers. However, users can disable or stop these apps (Consequently, these apps are prevented from displaying on the screen of device and from operating.).

As mentioned above, Google, whose main source of revenue is digital advertising (especially search advertising), has an incentive to spread widely use of its own apps and services, such as search services. In fact, while Google provides its mobile OS (Android) as open source, through MADA and others[52], Google requires OEMs to pre-install Google's apps such as Chrome and Google Search and/or to set those apps as default[53], if they pre-install Google Play, which is usually considered necessary to pre-install on Android smartphones (See Figure 4-6 for the contract between Google and OEMs.). This is considered to be a business model that will result in the wide dissemination of Google's own apps and services.

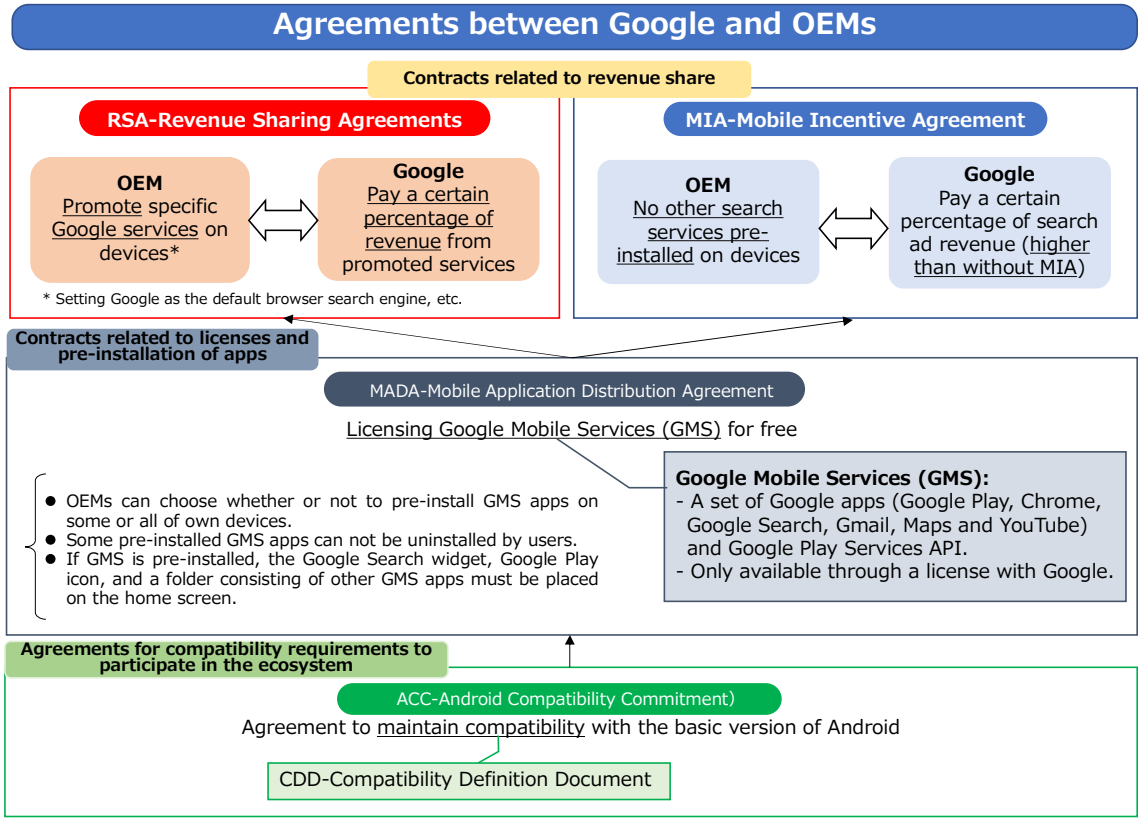
52 OEMs who install Android on their smartphones may enter into Revenue Sharing Agreements (hereinafter referred to as "RSA") with Google. In exchange for promoting certain Google services (e.g., default setting of Google Search) on the smartphones, such OEMs receive payment from Google for a percentage of the revenue generated from the promoted services on the devices.

In addition, some OEMs with RSA may enter into Mobile Incentive Agreements (hereinafter referred to as "MIA") with Google. In exchange for choosing not to pre-install other search services (including search services that compete with Google Search) on each smartphone device, Google pays the OEMs a higher amount of search advertising revenue than if they choose to pre-install other search services.

The main difference between RSA and MIA is that MIA payments are monthly lump sum payments and a one-time bonus payment, rather than a certain percentage of revenue from specific access points such as search and voice assistant.

53 Default settings in this report refer to settings (at the time the smartphone is shipped) such that a specific app or service is started or used when launching an app such as a browser, call, or SMS via another app, or when using a service implemented in an app such as a search engine within the app, and do not include the fact itself that native apps are pre-installed. The same applies below.

Figure 4-6. Agreements between Google and OEMs[54]



Although the percentage of revenues from Google Play out of Google's total revenue is unknown, when combined with the fact that attracting app developers to the Google's mobile ecosystem is an important aspect of gaining market share in the mobile OS market, as described in Chapter 6 below, it is likely one of the important elements for Google's business to maintain Google Play's share.

(2) Apple's business model

Apple's primary source of revenue is the sale of devices such as iPhones and other devices. As described below, unlike Google, Apple limits the native app store available on its smartphone (iPhone) equipped with its own mobile OS (iOS) only to its own App Store.

The following graph shows Apple's revenue structure based on full-year financial results for 2021 and 2022 published by Apple (right half of Figure 4-7).

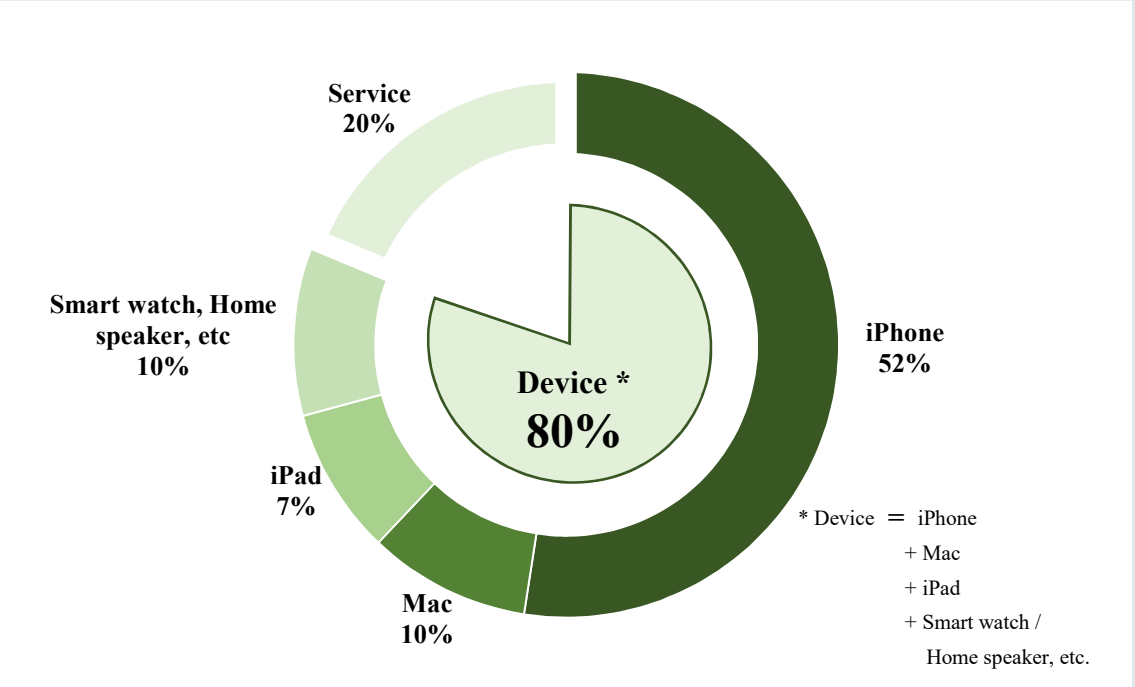
54 Created by the JFTC based on public information. See footnote 112 below regarding agreements related to compatibility requirements such as the ACC (Android Compatibility Commitment), etc.

Figure 4-7. Apple's full-year financial results for 2021 and 2022[55]

	Three Months Ended		Twelve Months Ended	
	September 24, 2022	September 25, 2021	September 24, 2022	September 25, 2021
Net sales:				
Products	$ 70,958	$ 65,083	$ 316,199	$ 297,392
Services	19,188	18,277	78,129	68,425
Total net sales [1]	90,146	83,360	394,328	365,817
[1] Net sales by category:				
iPhone	$ 42,626	$ 38,868	$ 205,489	$ 191,973
Mac	11,508	9,178	40,177	35,190
iPad	7,174	8,252	29,292	31,862
Wearables, Home and Accessories	9,650	8,785	41,241	38,367
Services	19,188	18,277	78,129	68,425
Total net sales	$ 90,146	$ 83,360	$ 394,328	$ 365,817

* Unit: million dollars. Annual revenue in 2022 was $394.3 billion.

Figure 4-8. Apple's revenue structure (2022)



Apple, unlike Google, does not offer its own mobile OS (iOS) to other companies. Apple is vertically integrating its part of mobile ecosystem: layers of smartphone devices, mobile OS, and app store in a closed manner. On the other hand, Apple adopts an open strategy for the app

55 Apple's full-year financial results for 2020 and 2021 (October 28, 2021)
https://www.apple.com/newsroom/pdfs/FY21_Q4_Consolidated_Financial_Statements.pdf

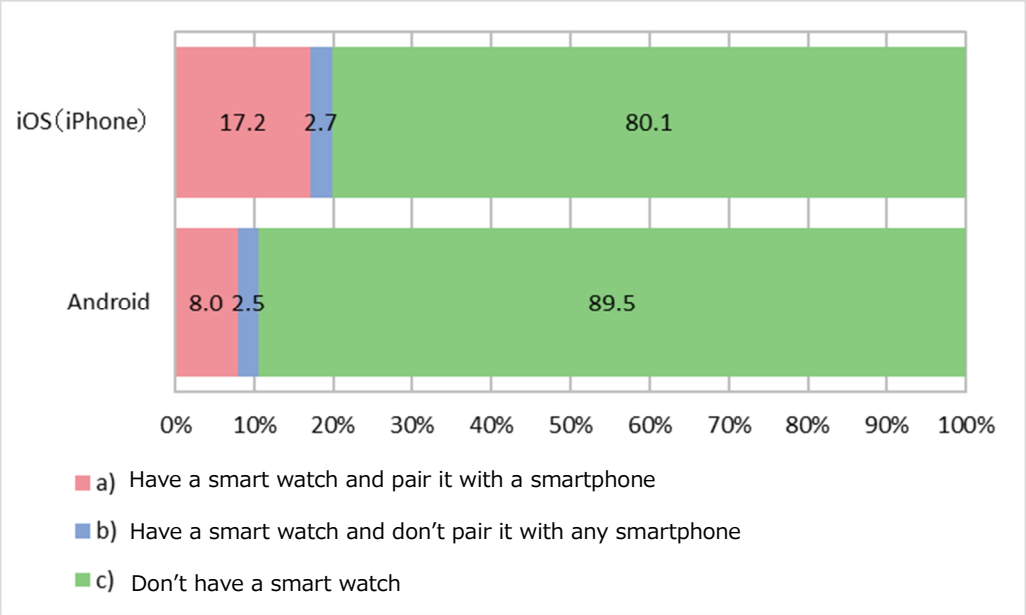
layer and other smartphone-related areas (e.g., music services, video distribution services, games, etc.), in which it invites third-party participation, while providing some services by itself.

3. Business expansion to smartphone-related areas and impact on competitors

Google and Apple, which provide mobile OS and app stores as well as various apps used on smartphones, are expanding their businesses into the smartphone-related goods and services used in conjunction with smartphones, such as smart watches and smart speakers.

According to the consumer survey, 19.9% of iOS users and 10.5% of Android users have smart watches, as shown in Figure 4-9. Thus, it can be inferred that smart watches are in the process of spreading in Japan (see Chapter 8-1 (1) (b) below for the results of the consumer survey regarding the status of linkage between smart watches and smartphones).

Figure 4-9. Smart watch usage among consumers (single answer)



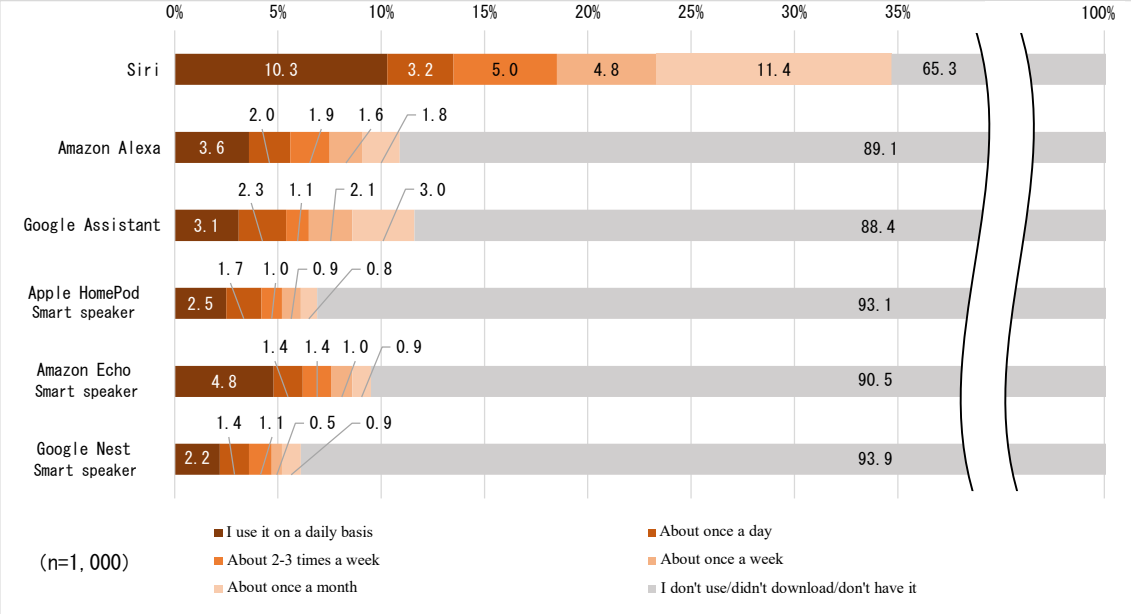
In addition, the JFTC asked questions about the usage of voice assistants including smart speakers in the consumer survey. As a result, 34.7% of iOS users use Siri[56] on their smartphones, but only about 10% of users use other voice assistants respectively[57], as shown in Figure 4-10. As shown in Figure 4-11, 21.7% of Android users use Google Assistant on their smartphones, but only less than 10% of users use other voice assistants respectively[58]. Moreover, looking at the

56 Siri is a voice assistant embedded in Apple products, including iOS, etc. Siri has never been sold as a separate, independent service. Apple has indicated that Siri is a core feature of the system, tightly integrated with Apple devices.
57 37.3% of iOS users use one or more voice assistant on iOS.
58 21.9% of Android users use one or more voice assistant on Android.

frequency of use of each voice assistant among the voice assistant users, even for the voice assistant that has a high percentage of daily users[59], the percentage is around 50%. For most voice assistants, the percentage of users who use the voice assistant on a daily basis is only around 30%. In this way, it can be inferred that voice assistants and smart speakers are still in the process of spreading in Japan.

The JFTC asked the reason for using Siri on iPhone and Google Assistant on Android smartphones, which are relatively popular. As shown in Figure 4-12, 61.1% of iOS users and 69.1% of Android users said that the voice assistant was included when they purchased the device.

Figure 4-10. Frequency of voice assistant usage among iOS users



59 Amazon Echo smart speaker (9.5% of iOS users use it and 4.8% of them use it on a daily basis)

Figure 4-11. Frequency of voice assistant usage for Android users

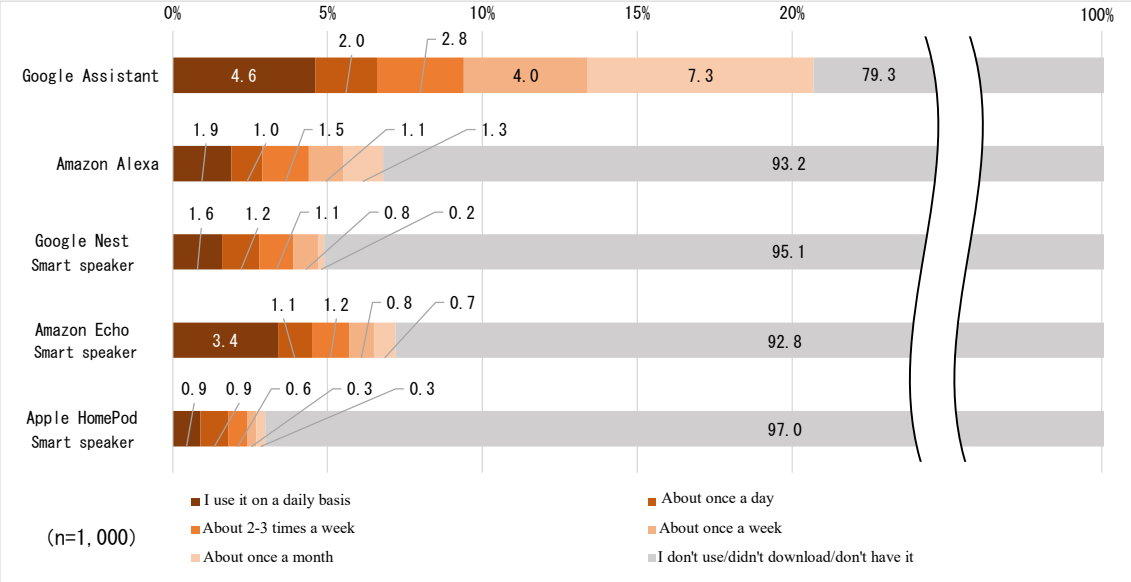
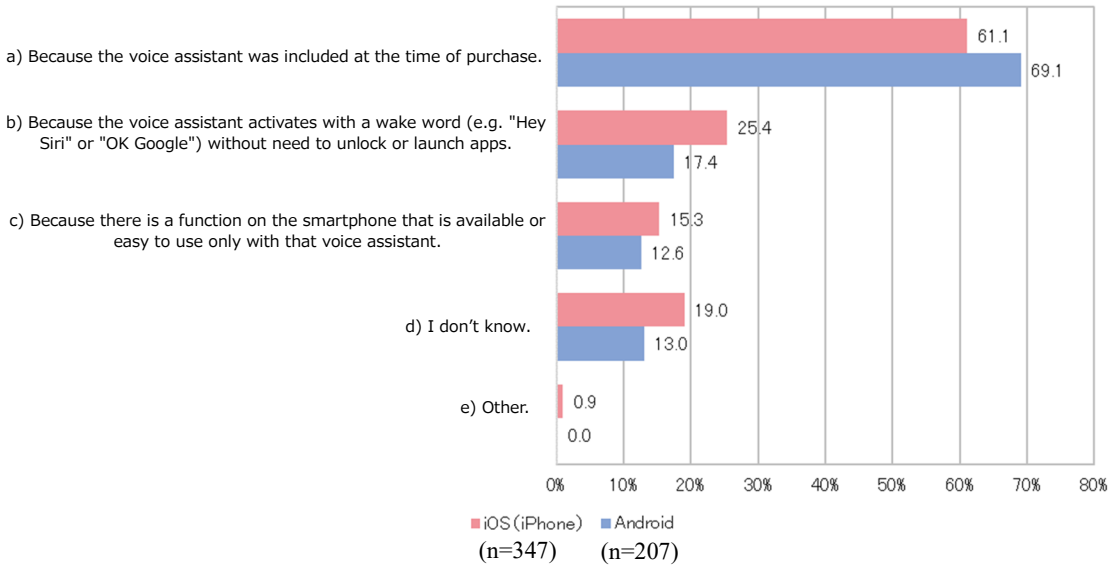


Figure 4-12. Reasons for using Siri and Google Assistant (multiple answers allowed)



As we have seen above, Google and Apple are expanding their businesses to the smartphone-related areas. In general, when a particular enterprise simultaneously provides services at different transaction stages (vertical integration), there is a possibility that efficiency will be improved. Also, the seamless provision of services across layers within the company may improve consumer convenience.

On the other hand, vertically integrated enterprises may favor their own related products and services over alternatives from other companies, resulting in consumers purchasing lower quality

products and services or paying higher prices. (See Chapter 8-1 below for competitive concerns regarding such self-preferencing in the app market and other smartphone-related markets.)

Chapter 5. Basic perspectives on the evaluation of competitive pressure in the mobile OS market and the app distribution service market

[Summary of this chapter]

- Important perspectives for evaluating competitive pressure in the mobile ecosystem are indirect network effects, lock-in effects, economies of scale and economies of scope.
- The mobile OS and app store are multi-sided markets in which consumers, app developers, smartphone manufacturers, and other users participate and indirect network effects work among these participants. In particular, indirect network effects interact between consumers and app developers.
- Switching the mobile ecosystem incurs financial costs for consumers, app developers, and smartphone manufacturers, as well as other costs for consumers such as learning costs and the hassle of transferring data. In addition, if the indirect network effects work sufficiently and the number of participants in the mobile ecosystem increases, the increased incentive to continue using the mobile ecosystem will become a barrier for participants to move to another mobile ecosystem. Thus, in the mobile ecosystem, switching costs and indirect network effects create a lock-in effect for its participants.
- Fixed costs are expected to account for the majority of the business costs associated with the provision of mobile OS and app stores. In mobile OS and app stores, economies of scale work strongly as operators with a large number of users can reduce business costs per user, giving them a competitive advantage and raising the barriers for new entrants. In the mobile ecosystem where indirect network effects work, economies of scale work effectively.
- When mobile OS and app store providers expand their businesses to other smartphone-related areas, synergies from economies of scope (such as the utilization of data collected in one field for use in another field, etc.) can be generated, which can be cost-effective. When economies of scope are working, it will be easier to provide various services on their own at each layer of the mobile ecosystem.

In Chapters 6 and 7 of this report, the JFTC will evaluate the competitive pressures in the mobile OS market and the app distribution service market. So, this chapter summarizes the basic perspectives of the evaluation. That is, indirect network effects, lock-in effects, economies of scale and economies of scope, which are considered to be particularly important perspectives for assessing competitive pressures in mobile ecosystems, will be discussed.

1. Indirect network effects

In general, the market for platform businesses is a two-sided market (multi-sided market) in which there are different user groups such as enterprises and consumers who use the platform. In the two-sided market (multi-sided market), a positive indirect network effect can work. A positive indirect network effect is an effect where there are multiple participant groups belonging to the

same network, and when the number of participants in one group increases, the benefits of participants in the other group increase (such positive effects are hereinafter simply referred to as "indirect network effects.").

Mobile ecosystems use a mobile OS and an app store as platforms.

Various users are participating such as:

- Consumers (access to apps, digital content and services provided on smartphones)
- App developers (provide apps, digital content and services to consumers on smartphones)
- Smartphone manufacturers (manufacture and sell smartphones to consumers)

Based on the current state of the mobile ecosystem, the JFTC will examine how the indirect network effects work for mobile OS and app stores in the following.

First, for consumers, if there are many app developers are using a certain mobile OS or app store, the number of apps available on the mobile OS or the app store will increase, and the consumer benefits of using the mobile OS or the app store will increase.

Second, for app developers, if more consumers use the mobile OS or app store[60], the number of consumers they can provide apps for the mobile OS or app store will increase, so the benefits of using the mobile OS or app store will increase for app developers.

Also, for smartphone manufacturers, if more consumers and app developers use a certain mobile OS, the benefits of manufacturing and selling smartphones with the mobile OS will increase, and the benefits to smartphone manufacturers from using the mobile OS will increase.

In this way, indirect network effects work in mobile OS and app store. Especially between consumers and app developers, indirect network effects work with each other. By increasing the number of app developers using a particular mobile OS or app store, the diversity (quality and quantity) of apps available to consumers will be improved and the benefits of consumers will also increase. Then, as the number of consumers increases, the benefits of app developers will increase and the number of app developers increases further.

2. Lock-in effects

Lock-in refers to a situation in which a user of a product or service wants to stop using it and change to another, but cannot do so due to reasons such as switching costs, indirect network effects and so on[61]. Below, the possible lock-in effects in the mobile ecosystem will be examined from the perspective of switching costs and indirect network effects.

Firstly, from the viewpoint of switching costs, the following can be considered. Since a

60 The fact that some apps are offered for free is thought to be a contributing factor to increase in the number of consumers using the apps.

61 Competition Policy Research Center, the JFTC. 2005. "Economic Analysis on Network Externalities and Switching Costs," p.3.
https://www.jftc.go.jp/cprc/reports/index_files/cr-0605.pdf

smartphone, mobile OS and major app store are offered together, consumers need to buy smartphones of another mobile ecosystem to change their participating ecosystem. As a result, changing the mobile ecosystem will result in financial costs for consumers to buy new smartphones. Also, for app developers and smartphone manufacturers, there are still financial costs associated with switching mobile ecosystems, such as the need for additional investment in changing the app development environment (for app developers) and changing the connection between the hardware and mobile OS (for smartphone manufacturers).

Moreover, if consumers change their familiar smartphone, mobile OS, and app store, learning costs will be incurred as it takes time to adapt to changes in smartphone operation. Learning costs are also incurred for app developers and smartphone manufacturers associated with switching. It takes time to adapt to changes in the app development environment (for app developers) and the connection environment between hardware and mobile OS (for smartphone manufacturers).

In addition, there are apps and purchased digital content that cannot be used or are difficult to use when consumers switch to a different mobile OS. Also, other costs could arise such as the time and effort required to transfer data, etc.

These switching costs are a barrier to participants in one mobile ecosystem moving to another.

Secondly, regarding the lock-in effects from the perspective of indirect network effects, as mentioned in Chapter 5-1, if the indirect network effects work well among consumers, app developers, and smartphone manufacturer participating in the mobile ecosystem, the benefits of participating in the mobile ecosystem will increase as the number of participants increases, which in turn will increase the incentive for participants to continue to use the mobile ecosystem. This also creates a barrier for participants to move to another mobile ecosystem.

As a result, switching costs and indirect network effects will have lock-in effects on its participants in the mobile ecosystem.

3. Economies of scale

Economies of scale refer to the fact that the average cost per unit of products or services decreases as the production volume of a given product or service increases. The greater the proportion of fixed costs of production, the stronger the economies of scale. In the case of economies of scale are working, the higher the production volume, the lower the average production cost per unit. This makes it more competitive for enterprises with higher production volumes, more prone to monopolization, and makes higher barriers to new entrants with a cost disadvantage due to lower production volumes than these incumbent enterprises.

It is estimated that the majority of business costs associated with the provision of mobile OS and app stores are fixed costs (including development costs). Therefore, economies of scale are expected to work strongly in mobile OS and app store that form the core of the mobile ecosystem,

and enterprises with a large number of users can keep the business cost per user down, which is advantageous from a competitive standpoint and raises the entry barrier for new entrants.

As mentioned in Chapter 5-1, indirect network effects work in mobile ecosystems, and mobile ecosystems with a certain number of users at each layer tend to have even more users. This allows economies of scale to work effectively.

4. Economies of scope

Economies of scope refer to the fact that the production costs of products or services are smaller and more efficient when they are produced together by the same company than they are produced by different companies. For example, when a company that provides services using data in one field uses the collected data and the technology and equipment related to the data collection in order to provide services in another new field, the cost of service provision is likely to be lower than when different companies provide services using the data in each field.

In terms of mobile ecosystems, when enterprises providing mobile OS and app store, which form the core of the mobile ecosystem, expand their businesses into other smartphone-related areas, synergies from economies of scope (such as the utilization of data collected in one field for use in another field, etc.) can be generated, which can be cost-effective. Thus, when economies of scope are effective, it will be easier to provide various services on their own at each layer of the mobile ecosystem.

5. Summary

Based on the above basic perspectives, it is important to acquire a certain level of participants (critical mass[62]) in order to form and maintain a mobile ecosystem. A mobile ecosystem that has achieved a critical mass will have enough indirect network effects to make it even easier to acquire participants. Conversely, if the mobile ecosystem fails to achieve the critical mass, the indirect network effects will not work sufficiently. Even if it provides technical equivalent functionality to another mobile ecosystem that has achieved the critical mass, it will be less attractive to participants.

And the large number of participants in a mobile ecosystem will increase the competitiveness of the mobile ecosystem in terms of economies of scale and increase barriers to entry for enterprises trying to offer new mobile ecosystems. Furthermore, the increased indirect network effects will also strengthen the lock-in effects, thus participants are locked into the mobile ecosystem. In addition, when the economies of scope are effective, it will be easier for enterprises

62 Critical mass refers to the minimal level of demand that platforms must have on their various sides.
(c.f. Evans, D.S. and Schmalensee, R. 2013. "The Antitrust Analysis of Multi-Sided Platform Businesses," No. w18783. National Bureau of Economic Research.)

to provide various services within the mobile ecosystem.

Thus, once a mobile ecosystem has reached a certain scale, its market position will be strengthened by the indirect network effects, the economies of scale and the lock-in effects. The economies of scope will make it easier for them to expand their service provision in the mobile ecosystem.

Based on the above basic perspectives and their relationships, in Chapters 6 and 7, the JFTC will evaluate the market structure and competitive pressures for the mobile OS market and the app distribution service market in Japan, respectively.

Chapter 6. Competitive Environment of Mobile OS Market

[Summary of this chapter]

- In the past, Symbian OS and Black Berry OS each held a considerable share in the global market (on a page view basis) while Windows Phone also held a certain share. However, since around 2018, Android and iOS have accounted for almost 100% of the market share.
- As a background for Android and iOS to acquire a large share, both Google and Apple disseminate smartphones equipped with their own mobile OS and launched app stores to attract app developers and consumers to their mobile ecosystems. It is assumed that the indirect network effects worked mutually between developers and consumers, which contributed to form robust mobile ecosystems.
- As for the share of mobile OS (on a page view basis) in Japan, Android and iOS have accounted for almost 100% since mid-2011, with iOS accounting for about 70% and Android accounting for about 30%.
- In Japan, Android and iOS also gained a large share because there were few other mobile OSs to compete with Android and iOS, making it easier to deploy the mobile ecosystems that were forming in the global mobile OS market.
- In assessing competition in the Japanese mobile OS market, the JFTC examined the following competitive pressure on Android and iOS respectively and found that there is limited competitive pressure on either platform.

  (1) Competitive pressure between Android and iOS

  For consumers, the lock-in effects between Android and iOS make it difficult to switch between ecosystems. In addition, for app developers, it is reasonable to provide their apps to both mobile OS (multi-homing). For this reason, the competitive pressure between Android and iOS is limited.

  (2) Competitive pressure from other mobile OSs except Android and iOS

  Given the indirect network effects, other mobile OSs will need to acquire a sufficient number of both consumers and app developers in order to sustainably compete with Android and iOS. In order to achieve this, it is necessary to develop a highly attractive mobile OS, but the development and maintenance of a mobile OS requires significant financial and technical resources. As a result, competitive pressure from other mobile OSs, including new entrants, is not likely to work sufficiently.

  (3) Competitive pressure from other types of devices

  Basically, tablets, PCs and other devices are used together with smartphones and are not meant to be a replacement for smartphones. Therefore, these devices are not considered to provide valid competitive pressure on Android and iOS, at least at present.

1. History of mobile OS market (Emergence of smartphones and market share trends[63])

(1) Mobile OS history in the world

63 In this section, Statcounter's data are used to compare global and Japanese trends regarding the mobile OS market share.

There are various theories as to when the smartphone first appeared (depending on the definition of smartphone). In 1994, the IBM Simon with a touch panel was released. The Nokia 9000 Communicator, a mobile phone launched by Nokia in 1996, was called a “smartphone”, which is said to be the origin of the name “smartphone”.

In 1999, Research in Motion (current BlackBerry. Hereinafter referred to as “RIM.”) launched BlackBerry with BlackBerry OS, followed by the smartphone with Symbian OS developed by PSION (later acquired by Nokia), Apple's iOS, Android mainly developed by Google, and smartphones equipped with Microsoft's Windows Phone. In this way, smartphones have become more and more popular[64].

Figure 6-1 shows the share of the global mobile OS market (on a page view basis). As one of the early mobile OS, Symbian OS was found on Nokia smartphones and other devices. Symbian OS had a high global market share until about 2011, and was used in many smartphones. The BlackBerry OS, developed by RIM for the BlackBerry smartphones, also had a considerable share in the early days of smartphones. In addition, Microsoft's Windows Phone held a certain share, though not as large as these two companies[65].

iOS is a mobile OS developed by Apple and installed on iPhones. As shown in Figure 6-1, it has always maintained its global market share of around 20% to 30% since 2010, and has generally maintained the second largest market share in the world.

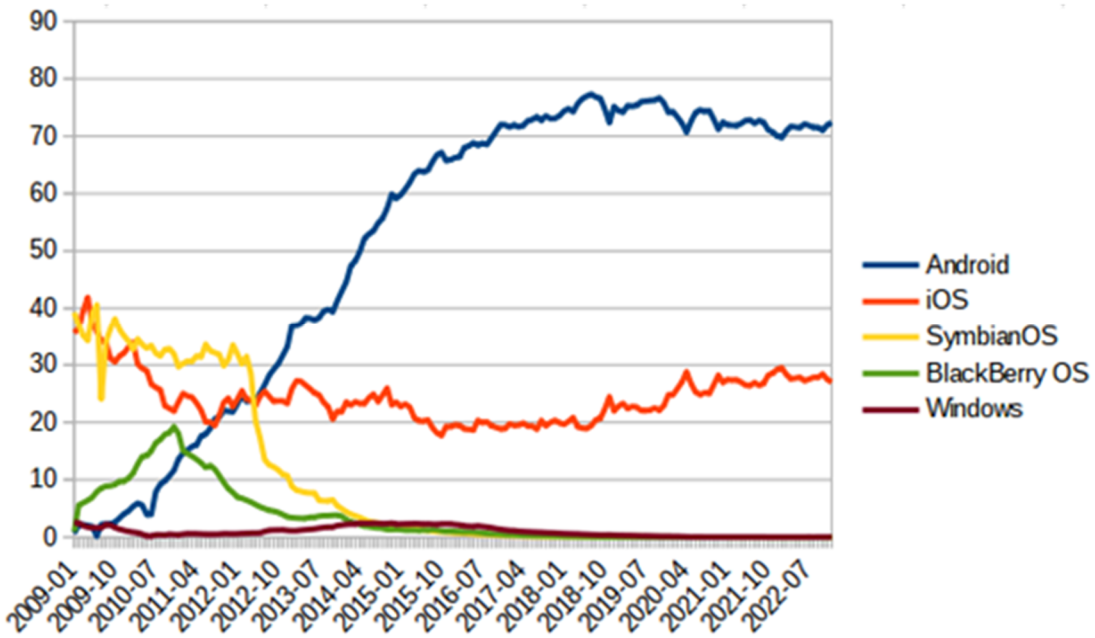
Android is a mobile OS developed by Android Inc., and has been developed mainly by Google since its acquisition of Android Inc. in 2005. Android is probably the first open-source mobile OS to become widespread on a large scale[66]. For global mobile OS market share, Figure 6-2 shows the global smartphone sales share (based on the number of devices) in 2009, 2011, and 2012. From Figure 6-1 and Figure 6-2, Android has been the mobile OS with the highest global market share since at least around 2013 until now.

As for the transition of the global mobile OS market share, Figure 6-1 shows that since 2009, Symbian OS has lost its market share in inverse proportion to the rise of Android, and BlackBerry OS has gradually lost its market share, which was higher than Android until around 2010. In 2012, Android gained more market share than iOS. However, even after iOS lost its share to Android, it has maintained a nearly constant market share, although it has increased and decreased repeatedly. And then, in around 2014, the market shares of all mobile OSs other than Android and iOS dropped to a few percent. Since around 2018, Android and iOS alone have accounted for almost 100% of the global mobile OS market share. As also shown in

64 Yamaguchi, S. “Smartphone OS: A key player in development of diverse application environments,” Communications Society Magazine, No. 43, Winter 2017
https://www.jstage.jst.go.jp/article/bplus/11/3/11_179/_pdf
65 Id.
66 Id.

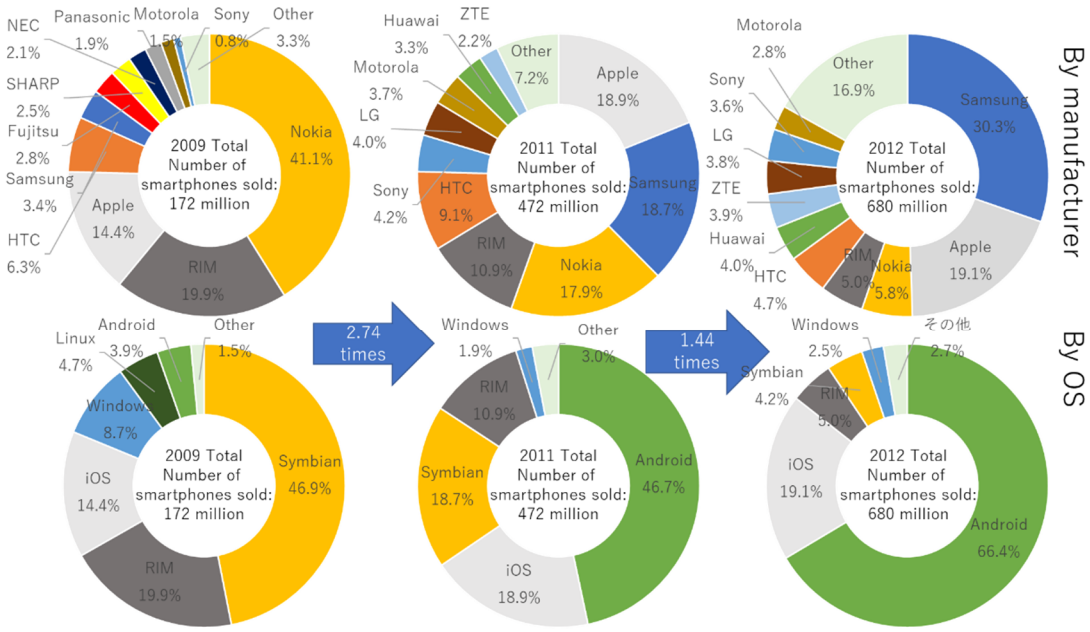
Figure 6-2, Android significantly increased its market share from 2009 to 2012, while Symbian OS and BlackBerry OS lost their market share, and iOS maintained a certain market share.

Figure 6-1. Market share of mobile OS worldwide[67]



67 StatCounter, "Mobile Operating System Market Share Worldwide," (December 2022) https://gs.statcounter.com/os-market-share/mobile/worldwide/#monthly-200901-202212

Figure 6-2. Changes in share of smartphone sales worldwide[68]



The background and reasons for such a large market share of Android and iOS are that Google and Apple have effectively incorporated consumers as well as app developers into their mobile ecosystems by popularizing smartphone devices belonging to each mobile ecosystem through their respective business strategies.

First, Apple's business strategy is characterized by its integrated in-house development of mobile OS and manufacturing of smartphone devices, thereby ensuring the uniformity of design and the branding by providing comfortable operability of a mobile OS dedicated to its smartphone devices. In 2007, Apple manufactured and sold the first smartphone (iPhone) with its own mobile OS (iOS), which had a unique design that no other smartphone had, and a touch-screen experience (ease of use without having to read instructions, with almost any operation directly touching the display with fingers), it quickly gained popularity among consumers[69]. In addition, in 2008, Apple attracted app developers and consumers to the app market by providing third-party app developers with SDK (Software Development Kit) for iOS for free

68 Prepared by the JFTC based on the MIC. 2013. "2013 WHITE PAPER Information and Communications in Japan," Part 1, Chapter 1, Section 2, Diagram 1-2-1-3
https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/h25/html/nc112120.html

69 The MIC. 2019. "2019 WHITE PAPER Information and Communications in Japan," Part 1, Chapter 1, Section 1
https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r01/html/nd111000.html
There were smartphones equipped with touch panels at that time, but many of them were pressure-sensitive and operated by pressing the screen with a stylus pen, which was inferior in terms of usability.

of charge[70] and opening the App Store[71] where consumers can download apps created by app developers. As a result of the formation and development of a mobile ecosystem that extends from the device market to the app market, centered on its self-developed mobile OS and smartphone devices. As shown in Figure 6-3, in 2011, Apple gained market share that surpassed or close to Symbian OS in many regions, mainly North America, and has maintained its market share since then.

Second, Google's business strategy is characterized by the fact that it separated the development of mobile OS from the manufacture of smartphone devices and made the mobile OS open source, making it easier for third parties to manufacture a wide variety of smartphone devices. In other words, Google (along with the Open Handset Alliance) was the first mobile OS provider to officially release the Android source code in 2008[72], bringing various OEMs, such as Samsung, to its mobile ecosystem, and succeeded in bringing a variety of smartphones equipped with the Android OS to the device market. In addition to mobile OS, Google also attracted app developers and consumers to the app market by providing third-party app developers with SDK for Android for free of charge[73] and opening an app store where consumers can download apps created by app developers by 2008[74]. As shown in Figure 6-3, in 2011, Google gained a large share of the device market and mobile OS market in Asia Pacific and many other regions by the formation and development of the mobile ecosystem that extends from the device market to the app market, centered on Android OS.

As a result of each of these business strategies, as shown in Figure 6-2, smartphones with Android or iOS significantly outperformed smartphones with other mobile OSs in sales in 2012. And as shown in Figure 6-1, they had successfully overtaken other mobile OSs largely even on a page view basis in around 2013.

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70 Apple Newsroom Archive “Apple Announces iPhone 2.0 Software Beta” (March 6, 2008) https://www.apple.com/newsroom/2008/03/06Apple-Announces-iPhone-2-0-Software-Beta/

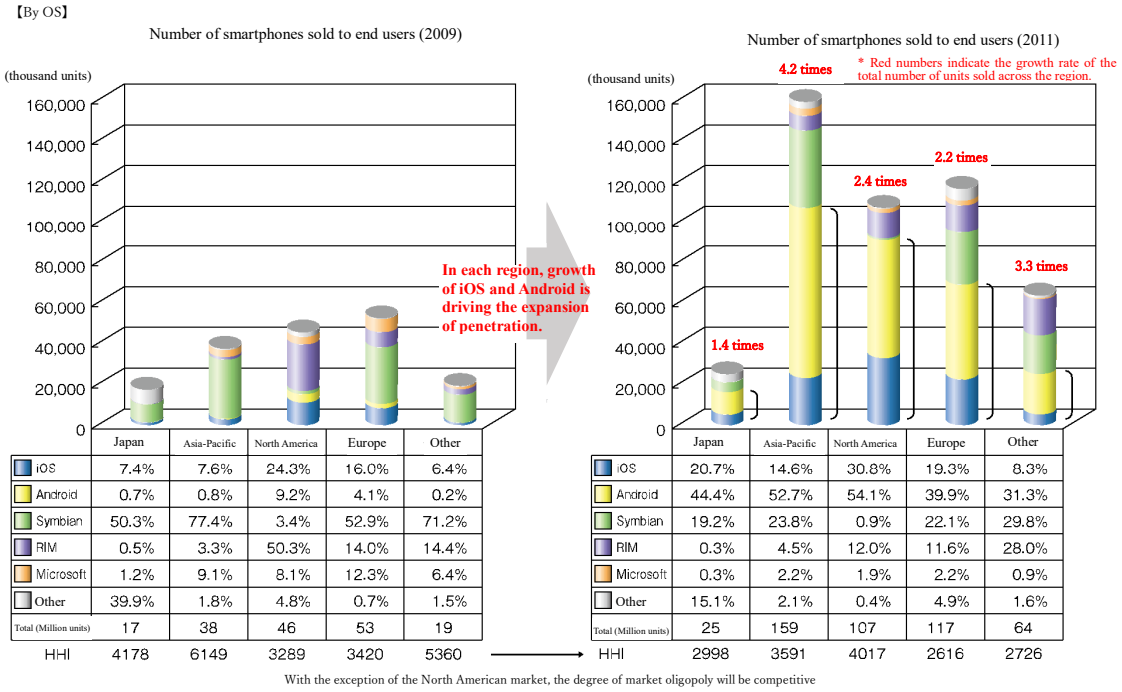
71 Apple Newsroom Archive “iPhone 3G on Sale Tomorrow” (July 10, 2008) https://www.apple.com/newsroom/2008/07/10iPhone-3G-on-Sale-Tomorrow/

72 Android Developers Blog Archive “Android is now Open Source” (October 21, 2008) https://android-developers.googleblog.com/2008/10/android-is-now-open-source.html

73 Android Developers Blog Archive “Announcing the Android 1.0 SDK, release 1” (September 23, 2008) https://android-developers.googleblog.com/2008/09/announcing-android-10-sdk-release-1.html

74 Android Developers Blog Archive “Android Market: Now available for users” (October 22, 2008) https://android-developers.googleblog.com/2008/10/android-market-now-available-for-users.html

Figure 6-3. Changes in global smartphone market share by region (based on units sold)[75]



2009	Japan	Asia-Pacific	North America	Europe	Other
iOS	7.4%	7.6%	24.3%	16.0%	6.4%
Android	0.7%	0.8%	9.2%	4.1%	0.2%
Symbian	50.3%	77.4%	3.4%	52.9%	71.2%
RIM	0.5%	3.3%	50.3%	14.0%	14.4%
Microsoft	1.2%	9.1%	8.1%	12.3%	6.4%
Other	39.9%	1.8%	4.8%	0.7%	1.5%
Total (Million units)	17	38	46	53	19
HHI	4178	6149	3289	3420	5360

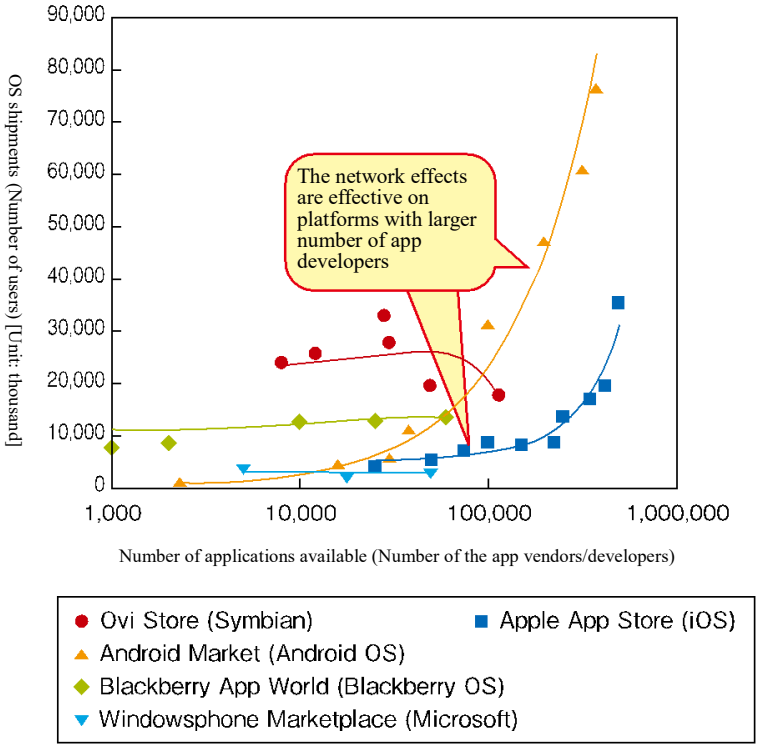
2011	Japan	Asia-Pacific	North America	Europe	Other
iOS	20.7%	14.6%	30.8%	19.3%	8.3%
Android	44.4%	52.7%	54.1%	39.9%	31.3%
Symbian	19.2%	23.8%	0.9%	22.1%	29.8%
RIM	0.3%	4.5%	12.0%	11.6%	28.0%
Microsoft	0.3%	2.2%	1.9%	2.2%	0.9%
Other	15.1%	2.1%	0.4%	4.9%	1.6%
Total (Million units)	25	159	107	117	64
HHI	2998	3591	4017	2616	2726

In this way, it is thought that Google and Apple acquired consumers through the sale of smartphones based on their respective strategies, while they stimulated the development incentives of app developers and acquired app developers by opening an app store where consumers can easily download apps developed by app developers using respective SDKs of Google and Apple. It is assumed that an increase in the number of app developers and the variety (i.e. quality and quantity) of apps available to consumers on their mobile OSs will make them more attractive and lead to acquiring more consumers, and at the same time, such increase of consumers will lead to increasing app developers. Thus, indirect network effects (see Chapter 5-1) worked with each other to form a robust mobile ecosystem centered on a mobile OS or smartphone devices equipped with the mobile OS.

This correlation between the number of app developers and the number of consumers can also be seen in Figure 6-4. It seems that the expansion of the number of consumers and app developers, centered on the encompassment of app developers, was the driving force behind the spread of a mobile OS by Google and Apple.

75 The MIC. 2012. "2012 WHITE PAPER Information and Communications in Japan," Part 1, Chapter 2, Section 2, Diagram 2-2-1-3
https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/h24/html/nc122110.html

Figure 6-4. App developers and mobile OS popularization[76]



On the other hand, mobile OSs except Android and iOS was not able to acquire enough app developers as shown in Figure 6-4. In particular, Symbian OS was not able to acquire app developers despite the high volume of OS shipments. This indicates that other mobile OSs have failed to form a robust mobile ecosystem like Android's and iOS's, which fully encompasses not only consumers but also app developers. For example, a Symbian OS, which was originally developed as an OS for mobile phones (feature phones) before smartphones, has a user interface (UI) that relies on input by keyboard, and could not adequately respond to touchscreen operations that have been required for smartphones since the advent of iPhone[77]. Nokia developed a UI for touchscreen operation and in 2010, nearly two years after release of Android source code, released its mobile OS source code and SDK like Android[78]. However,

76 The MIC. 2012. “2012 WHITE PAPER Information and Communications in Japan,” Part 1, Chapter 2, Section 2, Diagram 2-2-2-8
https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/h24/html/nc122220.html
Note that the "network effects" in the figure seems to mean “indirect network effects.”

77 Symbian FOUNDATION “All About the Symbian OS”
https://symbianfoundation.org/all-about-the-symbian-os/

78 Nokia Developer News “Symbian Goes Open Source, S^3 Announced” (February 23, 2010)
Note that, at the time of writing of this report, the article was not found on the Nokia website and is available only from the Internet Archive below.
https://web.archive.org/web/20120517090944/http://www.developer.nokia.com/Community/Blogs/blog/nokia-developer-news/2010/02/23/symbian-goes-open-source-s-3-announced

as shown in Figure 6-5, Symbian OS was not able to attract the interest of app developers who had developed apps for Android and iOS, where SDKs and app stores had been released earlier. For mobile OSs other than Symbian OS, BlackBerry OS was launched an app store for its OS in 2009[79] and Windows also launched in 2010[80]. As shown in Figure 6-5, they were not able to get the attention of app developers, and as a result, as shown in Figure 6-4, they were not able to acquire enough app developers. The fact that other mobile OSs failed to acquire a sufficient number of app developers can be seen from the fact that the number of apps registered in respective app stores is smaller than that of Android and iOS at the same period of time, as shown in Figure 6-6.

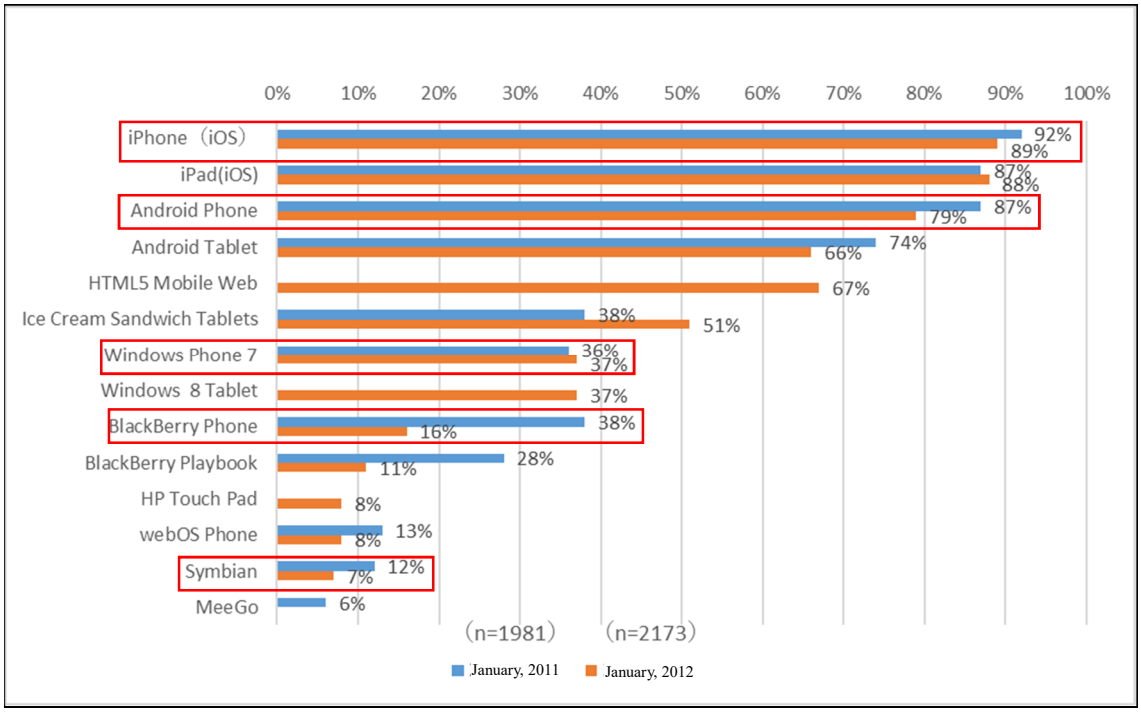
Attracting app developers has become a key factor in gaining market share in the mobile OS market, and in fact, a certain enterprise said that it left the mobile OS market because it had not been able to attract enough third-party app developers.

From the above, it can be assumed that the reason for the decline of the market share of other mobile OSs, contrary to the increase in the share of Android and iOS in the mobile OS market, is that they were not able to form a robust mobile ecosystem which fully incorporated not only consumers but also app developers.

79 BlackBerry, BlackBerry Blog "Celebrating 5 Years of BlackBerry World: Infographic" (April 1, 2014) https://blogs.blackberry.com/en/2014/04/blackberry-world-anniversary
Note that, there is no article left before April 12, 2012 on the company's blog, so it is not possible to view the article at the time of opening the app store.

80 Microsoft, Windows Phone Developer Blog "Introducing App Hub for Windows Phone 7 & Indie Game Developers" (October 11, 2010) https://blogs.windows.com/windowsdeveloper/2010/10/11/introducing-app-hub-for-windows-phone-7-indie-game-developers/

Figure 6-5. Percentage of app vendors and developers with an intention to develop an app (for each mobile OS, etc.)[81]



81 Prepared by the JFTC based on the MIC. 2012. "Research and Survey on International Comparison and Trends in Information and Telecom Industries and Services," Diagram 2. 3-27. https://www.soumu.go.jp/johotsusintokei//linkdata/h24_05_houkoku.pdf

Figure 6-6. Developments in the formation of diverse ecosystems in the smartphone market[82]

Enterprise classification			Internet-related			Manufacturers			Carrier
Main enterprise			Microsoft	Google	Apple	Nokia	RIM	Samsung	NTT Docomo i-mode
Business layer	Contents/apps		Live! Service	Google Mobile Services	iTunes Mobile Me	Ovi Service	BlackBerry	–	i-app Unofficial site
	Platforms	App store	Sky Market	Google Play	App Store	Ovi	BlackBerry App World	Samsung Apps	Carrier-operating market
		Customer management / charging	ID management / charging function (credit card payment)						Charging/ collection proxy
	Network (relationship with a carrier)		Carrier neutral		Selected by Apple (Sales incentives)	Carrier neutral			The network manages the whole
	User interfaces	OS	Windows Mobile Windows 8	Android OS	iOS	Symbian OS	RIM OS	Bada	Various OSs
		Device	Windows Phone	Android device	iPhone/iPad	Symbian device	BlackBerry	, Mainly Android device	i-mode device
		Main supplier	Other enterprise (each manufacturer)		Own enterprise				Other enterprise (Each manufacturer)
		Main planner/developer	Led by a device manufacturer						Led by a carrier
Smartphone market	World share of the device (number of sales in %)		–	–	19%	18%	11%	19%	–
	World share of the OS (number of sales in %)		2%	46%	19%	19%	11%	2%	–
	Number of registered apps		82,234 (As of April 2012)	450,000 (As of February 2012)	585,000 (As of April 2012)	116,583 (As of December 2011)	60,000 (As of January 2012)	–	5,521 (As of February 2012)
	Countries where app stores are available (%)		16%	24%	40%	95%	47%	52%	Within Japan

(2) Mobile OS history in Japan

In Japan, even before smartphones with Android or iOS were released, smartphones with other mobile OSs have been released. For example, in 2004, Nokia's "Vodafone 702NK" with Symbian OS was released from Japanese subsidiary of Vodafone (currently SoftBank)[83], and in 2005, "W-ZERO3" with Windows Mobile 5.0 (jointly developed by SHARP, Willcom and Microsoft) was released from Willcom (currently SoftBank)[84]. In 2006, "BlackBerry 8707h" with BlackBerry OS was released from NTT DOCOMO[85].

On the other hand, in 2008, one year after the launch of Android and iOS smartphones in the global mobile OS market, SoftBank Mobile (currently SoftBank) released "iPhone 3G[86]." A year later, in 2009, NTT DOCOMO released "HT-03A" with Android. Since then, various smartphones manufactured by various smartphone manufacturers have been released. As shown in Figure 2-1, the smartphone usage rate in 2021 (95.3%) has increased to about three times that in 2012.

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82 The MIC. 2012. "2012 WHITE PAPER Information and Communications in Japan," Part 1, Chapter 2, Section 2, Diagram 2-2-2-3
https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/h24/html/nc122210.html

83 SoftBank Corp. Vodafone 702NK
https://www.softbank.jp/mobile/support/product/vodafone_702nk/

84 Sharp Corporation W-ZERO3
https://jp.sharp/ws/004sh/index.html

85 NTT DOCOMO, INC., press release "'BlackBerry 8707h' device release" (September 19, 2006)
https://www.docomo.ne.jp/info/news_release/page/20060919b.html

86 SoftBank Corp., press release "Release of iPhone 3G on July 11" (July 8, 2008)
https://www.softbank.jp/corp/group/sbm/news/press/2008/20080708_01/

Figure 6-7 shows the share in the Japanese mobile OS market (on a page view basis). According to this figure, the share of iOS increased rapidly in 2009, while the share of Android increased significantly in the period from 2010 to 2011; on the contrary, the share of iOS decreased. For a time until the end of 2012, the share of iOS and that of Android were competing. Since then, the share of iOS has increased again, and on the contrary, that of Android has decreased, and for a while, the share of iOS is being about 70%, and the share of Android is continuing to be about 30%. Other mobile OSs, such as Symbian OS, had a few percent market share in the period from 2009 to 2010, but have barely gained a market share since then. As a result, in Japan, Nokia released no smartphones with Symbian OS since 2008[87], and BlackBerry released no smartphones with BlackBerry OS since 2013[88]. Microsoft also announced that it would end support for smartphones with Windows-based OS in 2019[89]. Thus, from mid-2011 to the present, Android and iOS alone account for almost 100% share in the Japanese mobile OS market.

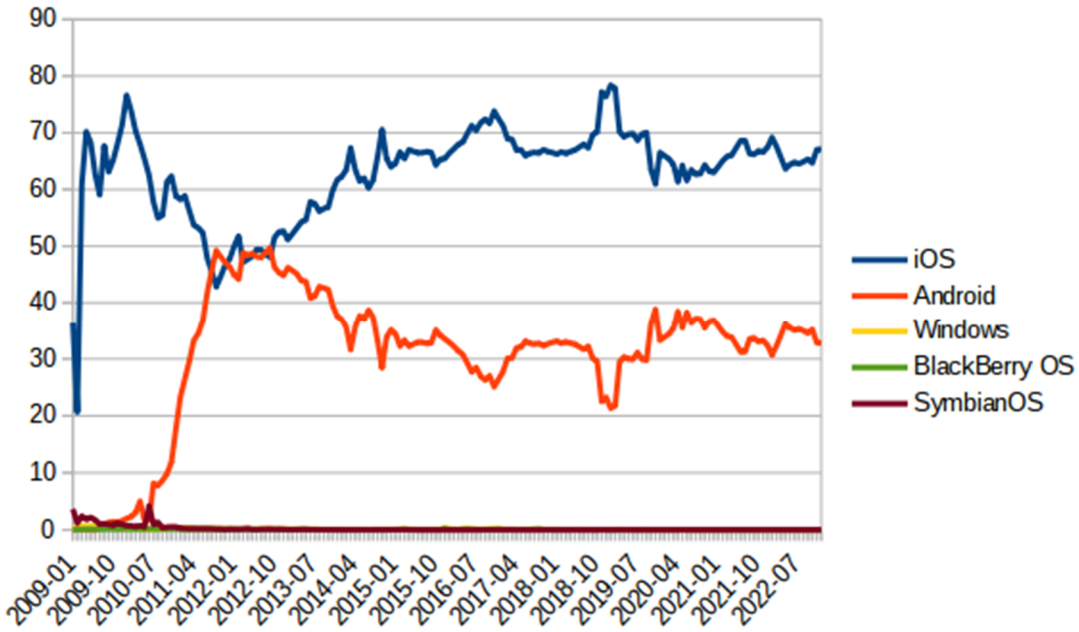
Figure 6-8 shows the market share of smartphones sold in Japan in 2009, 2011, and 2012. This also shows that Android and iOS increased their market share significantly in the period from 2009 to 2012.

87 SoftBank Corp., press release "Overview of Nokia N82" (October 30, 2008)
https://www.softbank.jp/corp/group/sbm/news/press/2008/20081030_10-page_11/

88 NTT DOCOMO, INC. Support information for BlackBerry® BoldTM 9900
https://www.docomo.ne.jp/support/product/blackberrybold9900/

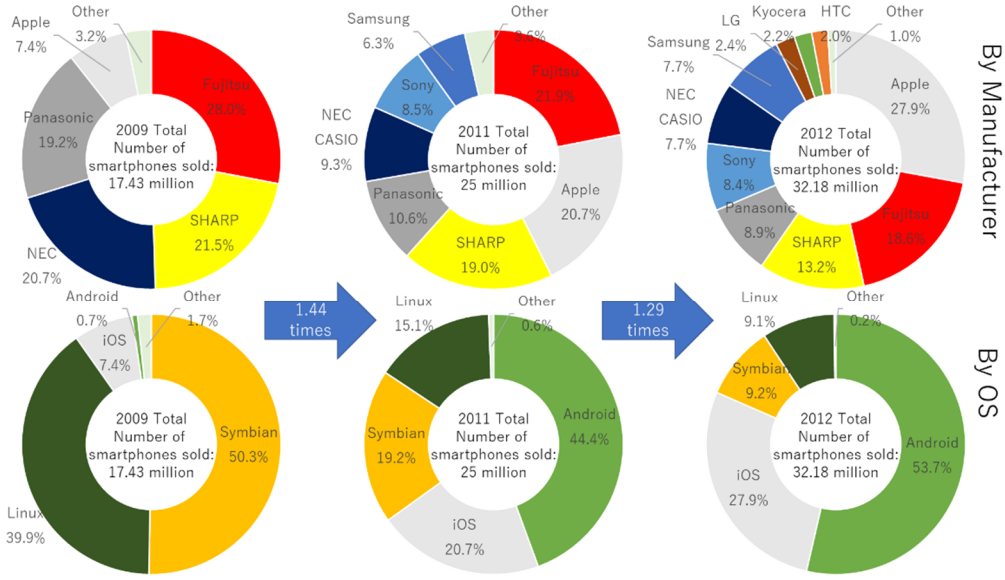
89 Microsoft Windows 10 Mobile End of Support: FAQ
https://support.microsoft.com/ja-jp/windows/windows-10-mobile-%E3%81%AE%E3%82%B5%E3%83%9D%E3%83%BC%E3%83%88%E7%B5%82%E4%BA%86-%E3%82%88%E3%81%8F%E3%81%82%E3%82%8B%E3%81%94%E8%B3%AA%E5%95%8F-8c2dd1cf-a571-00f0-0881-bb83926d05c5

Figure 6-7. Time-series transition of the share of mobile OSs in Japan[90]



90_Statcounter “Mobile Operating System Market Share Worldwide” (December 2022) https://gs.statcounter.com/os-market-share/mobile/japan/#monthly-200901-202212

Figure 6-8. Changes in the share of smartphone sales in Japan[91]



The reason why Android and iOS acquired such a large share in Japan is that there were few other mobile OS competitors in the Japanese mobile OS market, and that it seems it was easy to develop the mobile ecosystem which was forming in the global mobile OS market. Although smartphones with other mobile OSs were released in Japan even before smartphones with Android or iOS were released, these were marketed mainly for business use. Their purpose and operability were significantly different from the mobile phones (feature phones), which had evolved in unique ways and had already become popular among general consumers in Japan. Therefore, before the introduction of iPhone, there were no smartphones that became a decisive hit, and smartphones were not widely used in Japan[92]. As a result, even though the mobile

91 Prepared by the JFTC based on the MIC. 2013. "2013 WHITE PAPER Information and Communications in Japan," Part 1, Chapter 1, Section 2, Diagram 1-2-1-4
https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/h25/html/nc112120.html
Note that the graphs in Figure 6-2 and Figure 6-8 were created based on the survey conducted by Gartner Japan Ltd. Smartphones are defined based on the following description by the said company:
Those that satisfy the following three shall be smartphones;
(i) devices that adopt an OS whose specification has been published entirely or partially;
(ii) devices that adopt an OS, for which a software development environment (SDK) where an API is available to software developers is provided;
(iii) devices that respond to a mobile communication network, excluding tablet devices.
Devices applicable to (ii) includes Symbian, Linux, Android, Windows Phone, RIM (BlackBerry OS), and iOS. Gartner Japan Ltd. has included NTT DOCOMO's FOMA devices (since 2004) that use Symbian OS and Linux OS in smartphones (with some exceptions) because they meet the requirements to provide a software development environment that enables third parties recognized by NTT DOCOMO to use APIs.

92 NTT DOCOMO Mobile Society Research Institute. 2010. "White Paper on Mobile Society 2011," CHUOKEIZAI-SHA, Chapter 5, Column 2 (Yuichi Kogure), p.188.
According to the MIC. 2019. "2019 WHITE PAPER Information and Communications in Japan," Part 1, Chapter 1, Section 1, it is said that consumers hesitated to use smartphones because they were unable to use the emoji and "Osaifu-keitai" functions that were commonly used on feature phones.
The MIC. 2019. "2019 WHITE PAPER Information and Communications in Japan," Part 1, Chapter 1, Section 1

phone ownership rate (by household including PHS) reached 95.0% in 2007[93], the percentage of smartphone owners excluding iPhones, among mobile phone owners, remained at about 1.4% in early 2010[94]. On the other hand, iPhones, which were introduced in Japan in 2008, were smartphones with excellent design and operability which other smartphones did not have, not for business use but for ordinary consumers[95], and iPhone ownership rate among mobile phone owners reached 3.0% in early 2010[96]. It is thought that the potential of smartphones, which is indicated by such a breakthrough of iPhone, is no longer negligible for smartphone manufacturers and telecommunication carriers in Japan, where mobile phones (feature phones) were prevalent in almost every household. In fact, telecommunications carriers began full-scale operation of smartphones in the fall of 2010[97]. Since many smartphone manufacturers have adopted Android as their mobile OS, which had been open-sourced since 2008[98], the share of Android in the mobile OS market increased in 2011, as shown in Figure 6-8. Since then, Android and iOS have continued to grow in the Japanese mobile OS market while maintaining a large share. It is thought one of the reasons why smartphones equipped with these mobile OS have become popular in Japan is that the same or equivalent functions provided by feature phones were installed on them[99].

As described above, in Japan, smartphones equipped with mobile OSs, which could be rivals

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https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r01/html/nd111110.html

93 The MIC. 2017. "2017 WHITE PAPER Information and Communications in Japan," Part 1, Chapter 1, Section 1, Figure 1-1-1-1
https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/h29/html/nc111110.html

94 NTT DOCOMO Mobile Society Research Institute. 2010. "White Paper on Mobile Society 2011," CHUOKEIZAI-SHA, Chapter 5, p.170.
According to Chapter 1, Document 1-10 of the said book, the ownership rate of mobile phones in the survey was about 90%. Accordingly, the ownership rate of smartphones, excluding iPhones, at the beginning of 2010, including those who do not own mobile phones, was only about 1.26% (1.4% x 90%).

95 Id. at p.188.

96 Id. at p.170.

97 For example, NTT DOCOMO has released the Samsung "Galaxy S" on October 28, 2010, and three out of the four smartphone models announced on November 8, 2010 were equipped with Android as the mobile OS.
https://www.docomo.ne.jp/info/news_release/2010/10/21_00.html
https://www.docomo.ne.jp/info/news_release/2010/11/08_00_6.html

98 In Japan, only SoftBank Mobile (currently SoftBank) was approved by Apple to sell iPhones at the beginning (in 2008). A few years later, KDDI/Okinawa cellular (au) launched "iPhone4S" in 2011, and NTT DOCOMO began selling "iPhone5s/5c" in 2013 with Apple's permission (see the MIC. 2019. "2019 WHITE PAPER Information and Communications in Japan," Part 1, Chapter 1, Section 1). Carriers such as KDDI and NTT DOCOMO were forced to choose smartphones other than iPhones until they obtained permission from Apple to sell iPhones.

99 According to the MIC. 2019. "2019 WHITE PAPER Information and Communications in Japan," Part 1, Chapter 1, Section 1, emojis were implemented on iPhone in 2010 and on Android in 2012. In addition, among the four smartphone models released by NTT DOCOMO in footnote 98, two models (made by a Japanese smartphone manufacturer) were equipped with "Osaifu-Keitai" and one-segment broadcasting. The "Galaxy S II LTE," which was announced at the same time, supported many services provided by NTT DOCOMO. On the other hand, the "BlackBerry Bold 9900," NTT DOCOMO's last smartphone equipped with BlakBerry OS, did not implement any of the such functions.
https://www.docomo.ne.jp/binary/pdf/info/news_release/2011/10/18_00_4-3.pdf
Also, according to the MIC. 2019. "2019 WHITE PAPER Information and Communications in Japan," Part 1, Chapter 1, Section 1, electronic payment as an alternative to "Osaifu-keitai" was implemented on Android in 2015 and on iPhone in 2016.

to Android and iOS, were not widely used. Then, Android had various OEMs in Japan and overseas manufacture smartphones equipped with it, and on the other hand, Apple pioneered the device market by launching an innovative smartphone called iPhone. In this way, Google and Apple popularized each smartphone and attracted app developers in Japan through the SDK and app store that had already been released. As a result, each mobile ecosystem seems to have been expanded in Japan as well[100].

2. Evaluation of competitive pressure

As mentioned in Chapter6-1, Android and iOS dominate the Japanese mobile OS market. In this context, the JFTC will assess whether the competitive pressures exist on Android and iOS, respectively. The anticipated competitive pressures are (i) a competitive pressure between Android and iOS, (ii) a competitive pressure from competing mobile OSs except Android and iOS (especially mobile OSs by new entrants), and (iii) a competitive pressure from other types of devices such as tablets and PCs.

Each of these is explained below.

(1) Competitive pressure between Android and iOS

In assessing whether Android and iOS can mutually become competitive pressures in the mobile OS market[101], the JFTC will consider whether consumers switch between Android and iOS devices (iPhones) along with the competitive pressures from app developers[102].

A. Switching between Android and iOS by consumers

According to a consumer survey, as shown in Figure 6-9, the majority of consumers use only one smartphone on a daily basis for personal use, which means single homing in terms of mobile OS. As seen in Chapter 2-1, 90% or more people in Japan are already using

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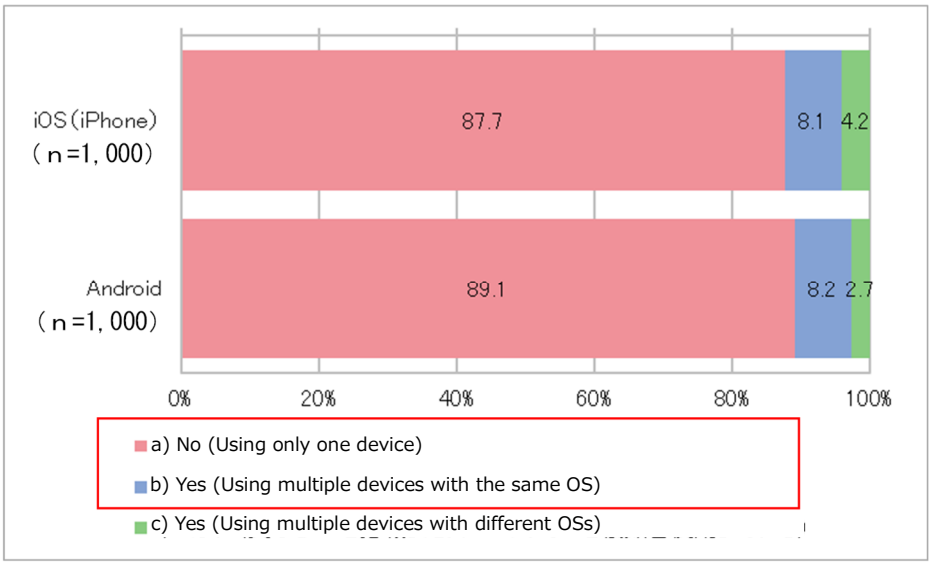
100 The size of the Japanese mobile content market (games/social games, video distribution, music content, and other) for smartphones and other devices (including tablets) was JPY 80.6 billion in 2011 and expanded to JPY 371.7 billion in 2012.
The MIC. 2013. “Survey Results on State of Mobile Content Industry Structure (2012)”
https://www.soumu.go.jp/main_content/000242106.pdf

101 In addition to apps, there are goods and services that are used in conjunction with smartphones, such as smart watches and voice assistants, as well as digital content and services provided within apps. For enterprises that provide the former goods and services, investment to optimize linkage with smartphones will be necessary in case that ease of linkage with smartphones like smartwatches is an important factor (see Chapter 8-1(1) below). In this case, if the above enterprises choose single homing of Android or iOS, they incur a certain amount of switching costs (development costs, etc.) by switching to a different mobile ecosystem. Therefore, the competitive pressure between Android and iOS from the viewpoint of switching by such enterprises is considered to be limited. Also, with regard to enterprises providing the latter type of digital content and services, the discussion on competitive pressure from app developers described in B. below is considered to be equally applicable since such digital content and services are provided within the apps.

102 There is no competitive pressure from smartphone manufacturers because getting a license of iOS is not an option for smartphone manufacturers (they cannot manufacture smartphones with iOS).

smartphones, and given that 95% of smartphone users are Android or iOS users as seen in Chapter 4-1, the majority of consumers have already joined either Android or iOS mobile ecosystems. Therefore, when considering the competitive pressure between Android and iOS, it is important whether consumers who already use smartphones switch between Android and iOS devices (iPhones).

Figure 6-9. Usage of multiple smartphones by consumers

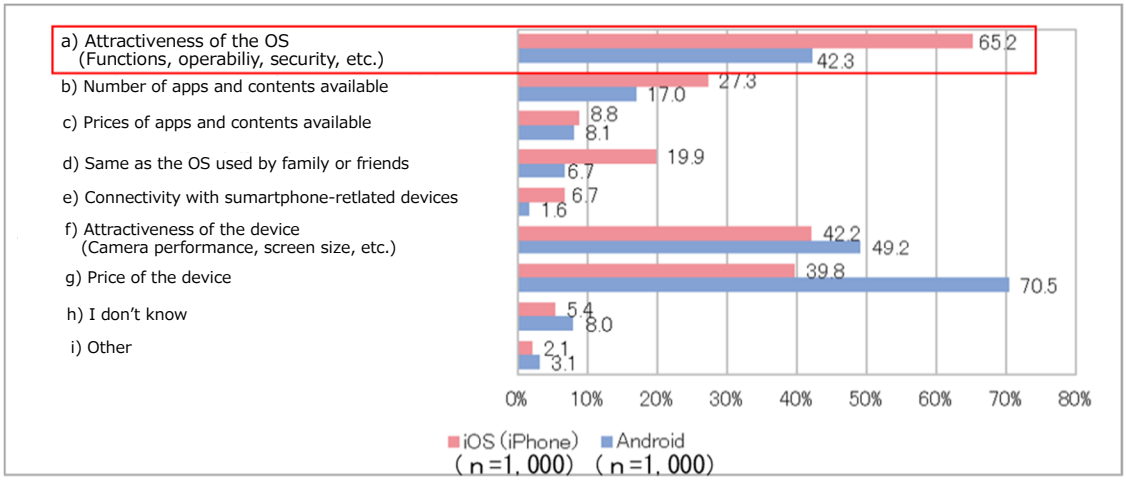


Note: Consumers were asked if they have more than one smartphone for personal use on a daily basis

(A) Status of switching between Android and iOS by consumers

As shown in Figure 6-10, 65.2% of iOS users and 42.3% of Android users place importance on the attractiveness of the mobile OS, such as functions, operability, and security, when choosing a smartphone. Such attractiveness is considered to be one of the factors that have a major influence on consumers' choice of a smartphone.

Figure 6-10. Factors that consumers consider important when choosing a Smartphone (multiple answers allowed)



Once consumers join either the Android or iOS mobile ecosystem, they are less likely to switch to another mobile ecosystem. According to a consumer survey, as shown in Figure 6-11, regarding the previous mobile OS, 88.1% of iOS users and 96.8% of Android users said they were using a smartphone with the same mobile OS as their current one[103]. On the other hand, only 10.7 percent of iOS users and 2.6 percent of Android users said they were using a different mobile OS from their current smartphone. In addition, as shown in Figure 6-12, 80% of iOS users and 56.8% of Android users said they would choose a smartphone with the same mobile OS as their current smartphone when they buy a new smartphone next time. On the contrary, 2.2% of iOS users and 3.6% of Android users said they would choose a smartphone with a different mobile OS from their current one. Also, 7.5% of iOS users and 16.4% of Android users said they would choose a smartphone depending on the quality of the device itself regardless of the mobile OS (iOS or Android).

103 It excludes respondents who said their current smartphone is their first one (98 users for iOS and 175 users for Android).

Figure 6-11. The mobile OS installed in the smartphone that consumers used most recently before the current one

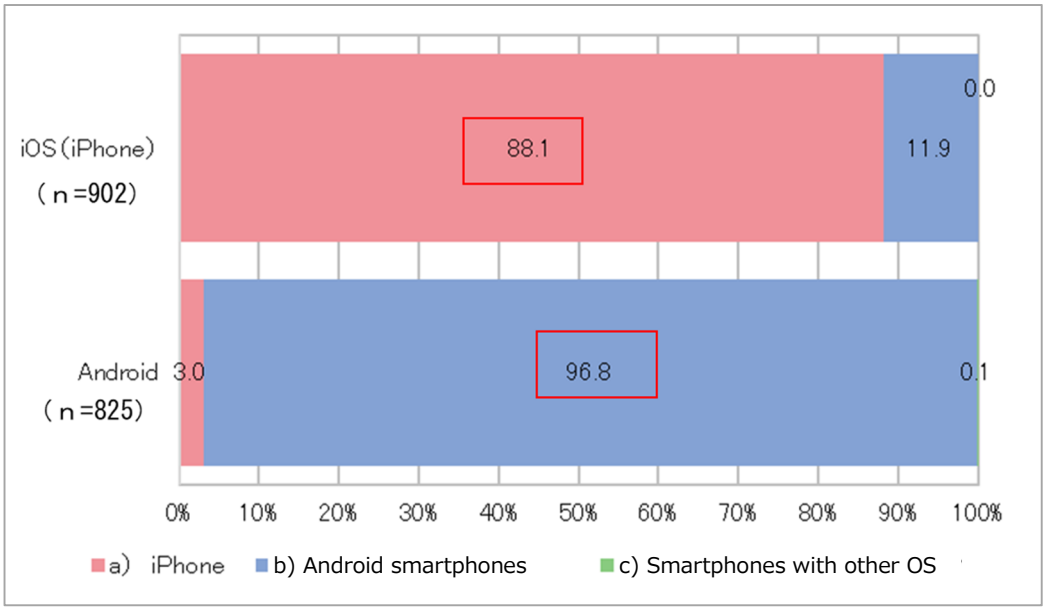
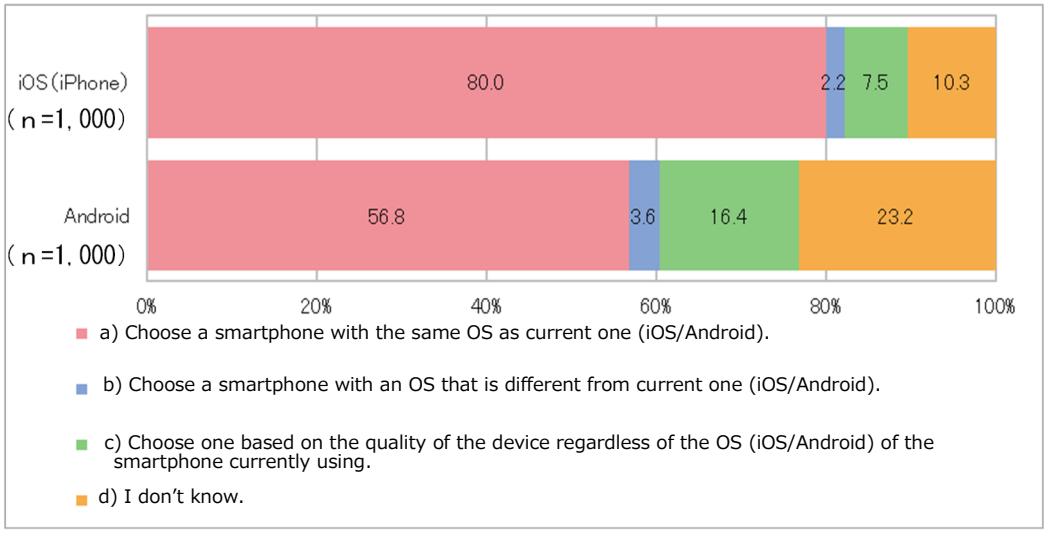


Figure 6-12. The mobile OS that consumers would choose when they buy a smartphone next time.

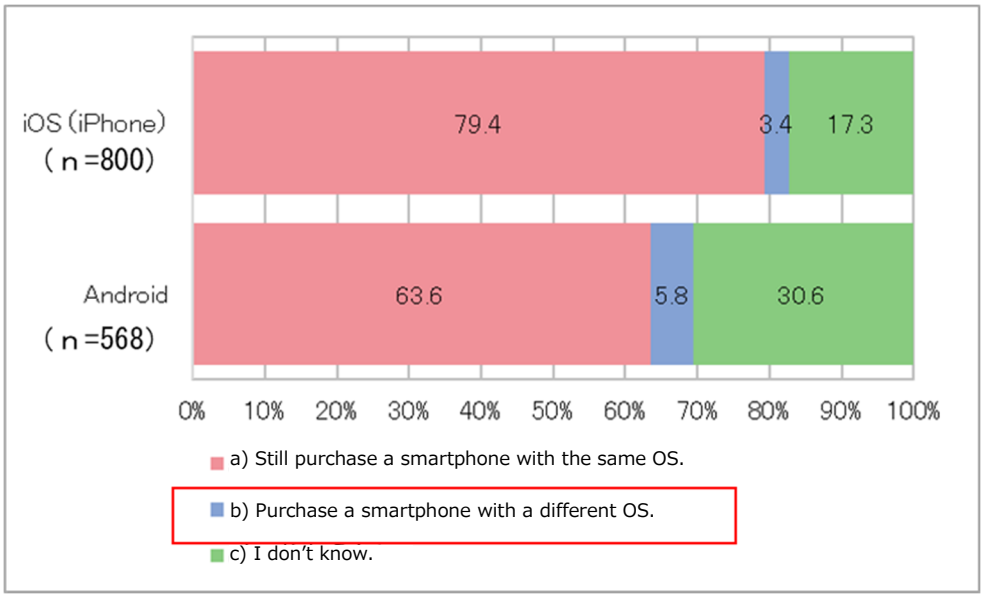


Comparing switching from Android with switching from iOS, as shown in Figure 6-12, 80% of iOS users are willing to purchase iOS again while 56.8% of Android users are willing to buy an Android next time. Thus, the trend above is more pronounced among iOS users.

Also, as shown in Figure 6-13, among those who said they would choose the same mobile OS, only 3.4% of iOS users and 5.8% of Android users said they would purchase

a smartphone with a different OS if the price of smartphones (or apps) with the mobile OS they chose rises by 5-10%. Based on the results of this survey, it is assumed that there is a lock-in effect in both of the Android ecosystem and the iOS ecosystem, making it difficult to switch between these ecosystems. Therefore, the cost of switching mobile OS by consumers will be examined in (B) below.

Figure 6-13. User's choice of a new smartphone when the price of the smartphone (or apps) with the same mobile OS as their current one rises by 5-10%[104]



(B) Costs related to switching a mobile OS by consumers

As mentioned in Chapter 5-2, when consumers switch a mobile OS, they incur various costs such as financial costs, learning costs and other costs (e.g. certain apps become unusable or difficult to use as a result of switching.).

In terms of financial costs, a consumer survey shows as in Figure 6-9 that nearly 90% of smartphone users do not use multiple smartphones with different mobile OSs on a daily basis for personal use (single-homing). Therefore, consumers have to spend money to buy a new smartphone when switching a mobile OS[105].

104 Of the 398 iOS and 705 Android users who selected "Price of the device" as the most important point when choosing a smartphone (Figure 6-10), 300 iOS users and 409 Android users said they would choose a smartphone with the same mobile OS as their current one when they buy a smartphone next time (Figure 6-12). Of these, 223 iOS users (74.3%) and 247 Android users (60.4%) said they would buy a smartphone with the same mobile OS even if the price of smartphones (or apps) with the mobile OS currently in use rises by 5-10%. In this way, even among those who focus on the price of the device when choosing a smartphone, a large number of respondents said that they would buy the smartphone with the same mobile OS as the current one even if the price of the smartphone (or apps) rises by 5 to 10%.

105 According to the "Time-series table 6 Change in the replacement of major durable consumer goods (households

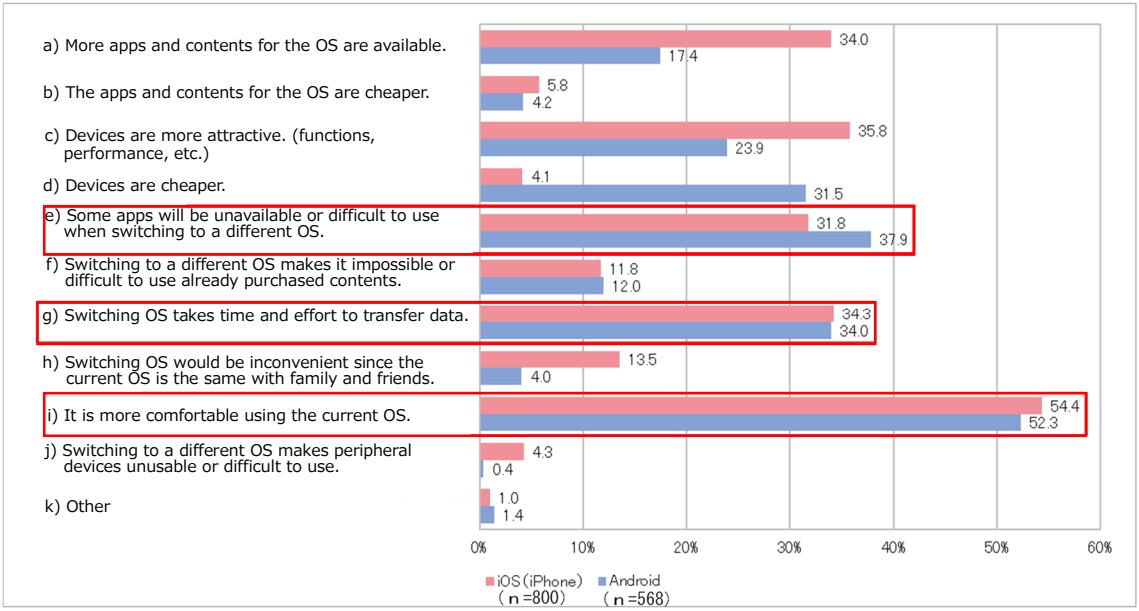
Also, consumers tend to choose a smartphone with the same mobile OS as their current smartphone when replacing their smartphones. Figure 6-14 shows the results of asking consumers why they would choose a smartphone with the same mobile OS as their current smartphone at the next purchase. Whether they're an iOS or an Android user, as the reasons for choosing the same mobile OS next time, many consumers answered “devices with the OS are more attractive” as well as “it is more comfortable using the current OS.” In addition, many respondents chose “some apps will be unavailable or difficult to use when switching to a different OS,” or “switching OS takes time and effort to transfer data[106] [107].”

of two or more persons)” in “Consumer Confidence Survey of March, 2022” released by the Cabinet Office in April of 2022, the average period of time the consumers use the same mobile devices (of which 92% are smartphones in the survey report) is 4.6 years in FY2021. This suggests that many consumers do not frequently replace their smartphones. This means only a limited number of consumers can switch mobile OSs at the time of replacement.
The Cabinet Office. 2022. “Consumer Confidence Survey of March, 2022”
https://www.esri.cao.go.jp/jp/stat/shouhi/honbun202203.pdf

106 For example, apps and data downloaded to the old smartphone may be ported directly to the new smartphone equipped with the same mobile OS. However, with a different mobile OS, users have to download the same app again on a new smartphone and port its data, which generally results in extra effort and incurs cost.

107 When switching the mobile OS, there are not only data that is difficult to transfer, but also data that cannot be transferred between old and new smartphones.
Taking LINE as an example, if the old and new mobile OSs are the same, it is possible to port all chat history from the old smartphone to the new one by backing up the chat history to iCloud or Google Drive. On the other hand, if users change the mobile OS, chat history older than 15 days cannot be ported to the new device.
LINE: Safely transferring your account
https://guide.line.me/ja/migration/
Also, taking PASMO as an example, when changing from an iPhone to an Android device, there is no way to transfer data between the devices. Users need to issue a new PASMO with a new smartphone after requesting a refund and unsubscribing it, but a refund fee of 210 yen will be charged when the users get a refund. Contrarily, when changing the model from an Android device to an iPhone, users can port PASMO by using the app on the Android device.
PASMO website “Use PASMO with Apple Pay”
https://www.pasmo.co.jp/mp/app/procedure/chg-model/

Figure 6-14. The reason for choosing a smartphone with the same mobile OS as current smartphone at the next purchase (multiple answers allowed)



Also, a certain number of consumers answered "switching to a different OS makes it impossible or difficult to use already purchased contents,"[108] and "switching OS would be inconvenient since the current OS is the same with family and friends."[109]

As seen above, there are various costs incurred for consumers to switch between Android and iOS, and it can be said that the consumers are locked-in to the mobile OS they are currently using.

(C) Competition over device price between Android and iOS

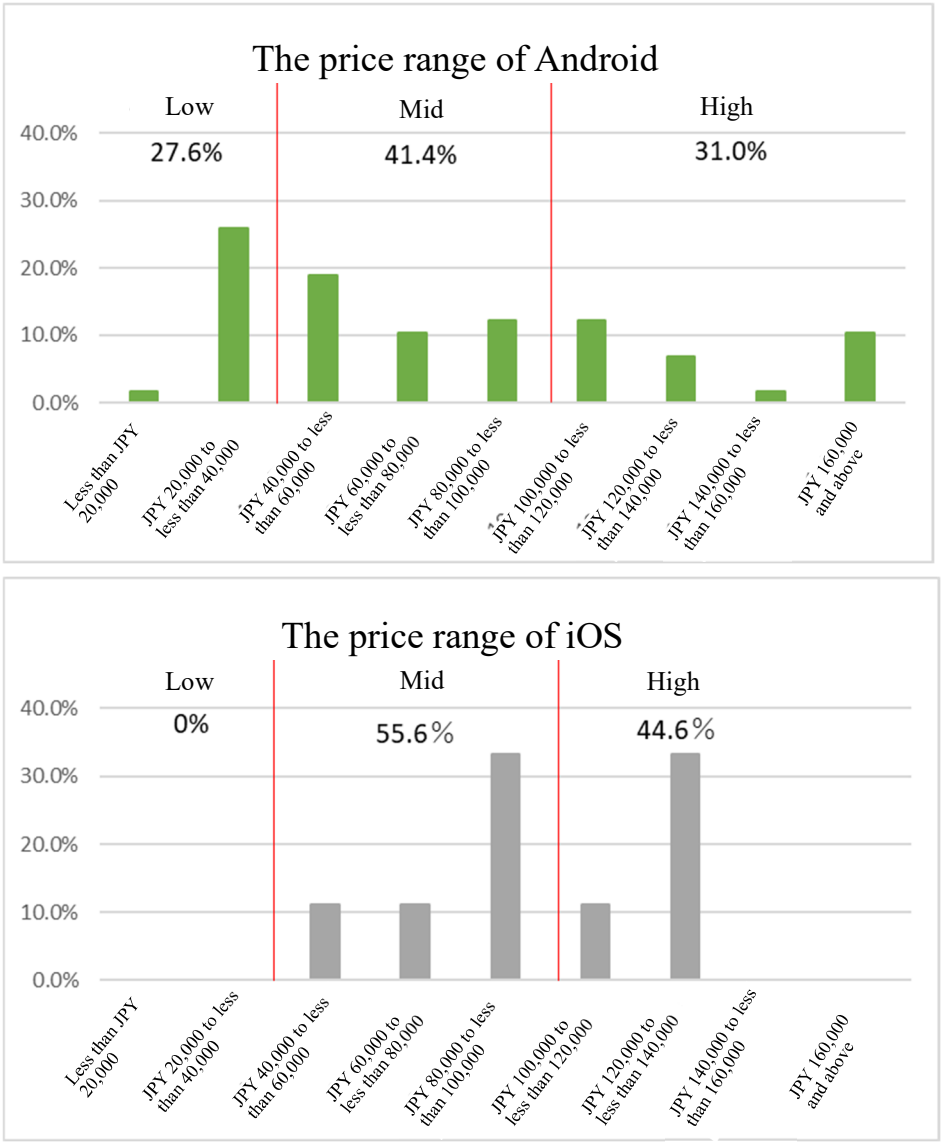
As shown in Figure 6-10, 70.5% of Android users cited the "price of the device" as an important point when choosing a smartphone, while the number of iOS users who cited "price of the device" was about half (39.8%). Also, as shown in Figure 6-15, compared to Android, which offers a wide range of devices from low to high price, iOS devices (iPhones) are not offered in the low-price range but in the mid and high price ranges. Despite the fact that there are cheaper Android devices, iOS users dare to choose iOS devices. This suggests that price competition between Android, especially Android devices in low price range, and iOS devices is limited[110].

108 If app or content purchase history is linked to an account on mobile OS, users may not be able to carry over purchased apps or contents when switching to a different mobile OS.

109 For example, apps such as AirDrop, which are used to share images with other users, can only be used between Apple devices such as iPhones. Therefore, for those who use the same apps with their family or friends, it will be difficult to communicate with each other when they switch to a device with a different mobile OS.

110 It is viewed that there is a certain level of price competition between Android devices and "iPhone SE" series, a

Figure 6-15. The price range of smartphones[111]



In light of the above, the competitive pressure between Android and iOS in terms of switching by consumers can be assessed as limited.

B. Competitive pressure from app developers

Below the JTFC examine the competitive pressures from app developers.

From the perspective of app developers, it is important to provide their apps to as many

low-price range iPhone.

111 Prepared by the JFTC based on the MIC, the 20th Working Group on Verification of Competition Rules, "Draft Direction of Study (Matters related to Device Market Trends)".

users as possible. As mentioned in Chapter 4-1, 95% or more of the smartphone users in Japan use an Android device or iPhone, and the majority of them are single-homing in terms of mobile OS, as described in (1)A. Under the circumstances the app developers who offer apps for only one mobile OS can't provide them to many consumers who only use the other mobile OS. Therefore, in order to provide an app to more consumers, it is a reasonable decision to provide it for both Android and iOS (multi-homing) as long as the profit can be secured. In other words, for many app developers, the provision of apps for Android and iOS are not alternative.

There are tools for creating apps for both Android and iOS. According to the interview with enterprises, “It doesn't cost twice as much to develop a native app for both Android and iOS because of the tools such as Unity and Flutter that can convert an app created for one mobile OS to the other.” In other words, with such means, developing apps for both Android and iOS is not a major burden for app developers.

As described above, it is reasonable for app developers to provide apps for both Android and iOS, and it can be said that the competitive pressure between Android and iOS from the perspective of app developers is also limited.

⑵ Competitive pressures from a mobile OS other than Android and iOS (analysis of entry barriers)

Although the development and maintenance of mobile OS requires significant costs, they are a product that a strong economy of scale occurs as mentioned in Chapter 5-3, and securing a sufficient number of users is important for its monetization. Therefore, the JFTC will consider whether a mobile OS other than Android and iOS (including mobile OS developed based on Android and not covered by compatibility agreement with Google[112], hereinafter referred to as “other mobile OS”) including new entrants are likely to achieve a critical mass. That is, whether there is (potentially) a mobile OS that will exert competitive pressure on Android and iOS will be examined in the following.

As mentioned in Chapter 5-1, there is indirect network effects between consumers and app developers, and the benefits of using a mobile OS for consumers depend on the number and

112 Google and smartphone manufacturers have signed the Android Compatibility Commitment (ACC), under which OEMs are committed to ensuring that the version of Android running on their devices meets certain compatibility requirements. The technical standards for Android compatibility are defined in the Compatibility Definition Document (CDD). In the ACC, smartphone manufacturers agree not to create incompatible versions of Android, and not to sell devices that use incompatible versions of Android (smartphones, tablets, smart TVs, smartwatches, and Automotive devices are included.) On the other hand, it is permitted to supply a device or its components to a third party who sells an incompatible version of Android. Also, it is allowed to freely develop and sell devices that use their own OSs except Android. Alternatively, they can choose not to obtain a license of Google apps, in which case they do not need to sign the ACC. In the past, the Anti-Fragmentation Agreement (AFA) to maintain compatibility was signed, but it has been replaced by the ACC since 2017.

quality of apps provided on the mobile OS. Therefore, in order to acquire critical mass consumers, the quantity and quality of apps available on the mobile OS are important. In this regard, as mentioned in Chapter 6-1, Android and iOS have successfully brought third party app developers into the mobile ecosystem centered on their mobile OSs to enhance the quality and quantity of available apps[113]. In order for other mobile OS to acquire a sufficient number of consumers and compete effectively with Android and iOS, the quality and quantity of available apps need to be increased.

For app developers, the benefits of developing and providing apps for a mobile OS depend on the number of consumers who use the mobile OS. In other words, it is usually efficient for app developers to develop and provide apps for a mobile OS having a large number of consumers. In this regard, most consumers are using Android or iOS due to abundant apps available on Android and iOS. In order for other mobile OS to acquire a sufficient number of app developers and compete effectively with Android and iOS, it is necessary to acquire a sufficient number of consumers.

Thus, given the indirect network effects between consumers and app developers, it is necessary for other mobile OS to acquire a sufficient number of both consumers and app developers in order to compete sustainably with Android and iOS.

However, in order for smartphone manufacturers to adopt a new mobile OS, they need to modify their hardware specifications, which incurs additional costs compared to adopting Android. Consequently, incentives to install a new mobile OS which is not appealing to consumers (and low market share) are low. In fact, as shown in Figure 6-10, when consumers purchase a smartphone, the major factors they take into consideration are not only the attractiveness and price of the smartphone device but also the attractiveness and usability of the mobile OS itself[114]. In order for other mobile OS to gain market share in the mobile OS market, it is necessary to develop a highly attractive mobile OS and have it installed on smartphones.

Therefore, it is unlikely that other existing mobile OS excluding Android and iOS will increase the number of smartphones launched and reach more consumers instead of Android and iOS.

In addition, in order to develop and maintain a mobile OS, it is necessary to construct a system and update it as needed, which requires a large amount of funds to be invested. In fact, an enterprise which has considerable development and technical capabilities but now has left

113 See Figure 6-4 and 6-6.

114 790 iOS users (79.0%) and 538 Android users (53.8%) chose at least one of the following options related to mobile OS; “Attractiveness of the OS (Functions, operability, security, etc.),” “Number of apps and contents available,” “Prices of apps and contents available,” “Same as the OS used by family or friends” or “Connectivity with smartphone-related devices.”

the mobile OS market pointed out that it took more than two years even for them to develop a mobile OS and that the development cost (such as research and development, salaries, infrastructure, miscellaneous expenses and other) has risen to nearly JPY 200 billion. Considering the fact that such large amounts of funds and the technological capabilities necessary for mobile OS development become barriers to entry, it is unlikely that a new mobile OS will be developed with the aim of gaining a share in the current mobile OS market, where Android and iOS dominate.

If other mobile OS does not attract enough consumers, app developers will not benefit from developing and providing apps for the other mobile OS. In that case, the indirect network effects between consumers and app developers do not work, and it is not possible to acquire a sufficient number of app developers.

Given the above, the competitive pressure from the other mobile OS, including a mobile OS by a new entrant, on Android and iOS in the mobile OS market cannot be sufficiently exerted.

⑶ Competitive pressure from other types of devices

There is a possibility that competitive pressure from other types of devices may arise on Android and iOS. In this regard, as mentioned in Chapter 2-4, smartphones have become essential devices for consumers to carry around in their daily lives, both at home and outside. Basically, tablets, PCs and other devices are not meant to be replaced by smartphones though some of them can be used in place of smartphones in certain usage or under specific circumstances. In other words, the use of such devices does not make smartphones unnecessary, and those devices are used in parallel with smartphones.

Therefore, it is unlikely that these other types of devices, at least now, provide effective competitive pressure on Android and iOS in the mobile OS market.

3. Brief summary

As discussed above, in the Japanese mobile OS market, which currently accounts for almost 100% of the total share of Android and iOS, there is little competitive pressure between Android and iOS, as well as competitive pressure against Android and iOS from other enterprises including new entrants and from other types of devices.

Chapter 7. Competitive environment of the app distribution service market

[Summary of this chapter]

- Among the ways in which consumers obtain or use apps from app developers (app distribution channels) to access digital content and services on their smartphones, Google Play and App Store have a large presence as app stores. Thus, the JFTC examined whether there is effective competitive pressure on Google Play and App Store from the following points. However, none of them appears to be effective competitive pressures.

  (1) Competitive pressure between Google Play and App Store

  There is little difference between native apps and contents available on Google Play and the App Store in terms of variety and price, and there is no incentive for consumers to switch between app stores. In addition, it is reasonable for app developers to provide apps to both app stores. For this reason, there is no effective competition between Google Play and App Store.

  (2) Competitive pressure from app distribution channels that do not go through Google Play or App Store

  (i) As for competitive pressure from other app stores, it cannot work because iOS does not allow users to install app stores other than App Store. On Android, other app stores do not rival Google Play in terms of the number and quality of apps, and the number of consumers using those stores is limited. Therefore, it is unlikely that other app stores exert significant competitive pressure on Google Play at present.

  (ii) As for competitive pressure from side-loading, it cannot work because side-loading is not allowed on iOS. On Android, side-loading is not an effective competitive pressure on Google Play because it requires additional setup and consumers typically download apps from app stores.

  (iii) As for competitive pressure from the use of web services (especially web apps) via the browser, web apps are currently not an alternative to native apps for consumers, and app developers are less incentivized to offer web apps as a replacement for native apps. Therefore, the provision of web services (especially web apps) via the browser is not an effective competitive pressure on Google Play and App Store.

  (3) Competitive pressure from other types of devices

  Consumers distinguish the use of smartphones from that of other devices as some of apps on smartphones require functions that are difficult to provide on other devices, such as location information. Therefore, using apps on tablets, PCs, or other devices cannot be alternatives to using apps on smartphones, which indicates that the app distribution for these devices doesn't give an effective competitive pressure on app distribution via Google Play and App Store.

There are four main ways in which consumers obtain or use apps from app developers to access digital content and services on their smartphones (app distribution channels).

(A) Downloading native apps from Google Play or App Store

(B) Downloading native apps without using Google Play and App Store

(B-1) Downloading native apps from app stores other than Google Play and App Store

(hereinafter referred to as “other app stores”)

(B-2) Downloading native apps outside app stores, such as via the browser (hereinafter referred to as “side-loading”)

(C) Using web services (especially web apps) via the browser

Providers of (A) and (B-1) are app store operators, and the providers of (B-2) and (C) are app developers themselves[115]; all of these methods are channels for consumers to obtain or use apps on smartphones.

This report examines whether there is effective competitive pressure on Google Play and App Store, given that they have a large presence as app stores as described in Chapter 4-1. The JFTC focuses on the fact that the method (A), (B), and (C) are substitutable when consumers obtain or use apps from app developers on their smartphones, and defines these methods as the app distribution service market, where customers are consumers and app developers using app stores, and suppliers are app store operators as well as app developers distributing apps by side-loading or providing web apps[116].

1. Overview of app distribution channels

(1) History of app stores

When the first iPhone was launched in 2007, there was no app store. Third-party app developers were able to offer Web 2.0 applications (Web apps) for iPhone. As for native apps, however, only pre-installed apps developed by Apple were available[117]. In 2008, Apple began offering iPhone 2.0 equipped with its app store (App Store), as well as an SDK that allows third-party software developers to develop and provide native apps for iOS[118]. In 2009, a year after the launch of App Store, the number of native apps downloaded from App Store exceeded 2 billion[119], and the number of native apps on App Store exceeded 100,000[120]. As of 3Q 2022, there are 1.64 million native apps on App Store[121]. App Store is pre-installed on iPhone, and any other app store cannot be installed on iPhone[122]. Therefore, it is necessary to use App Store

115 For example, an Amazon Appstore app is distributed through side-loading, and its APK file is posted on a dedicated page on the Amazon website.

116 As mentioned in the footnote 32, the “market” in this report was set for the purpose of conducting this market study. Any “particular field of trade” applicable for the AMA will be defined in accordance with individual cases.

117 Apple Press Release (June 11, 2007)
https://www.apple.com/jp/newsroom/2007/06/11iPhone-to-Support-Third-Party-Web-2-0-Applications/

118 Apple Press Release (March 6, 2008)
https://www.apple.com/newsroom/2008/03/06Apple-Announces-iPhone-2-0-Software-Beta/

119 Apple Press Release (September 28, 2009)
https://www.apple.com/jp/newsroom/2009/09/28Apples-App-Store-Downloads-Top-Two-Billion/

120 Apple Press Release (November 5, 2009)
https://www.apple.com/jp/newsroom/2009/11/04Apple-Announces-Over-100-000-Apps-Now-Available-on-the-App-Store/

121 Statista (Number of apps available in leading app stores as of 3rd quarter 2022)
https://www.statista.com/statistics/276623/number-of-apps-available-in-leading-app-stores/

122 Apple made comments regarding the fact that app stores or apps similar to app stores are not provided on App Store, saying “There are no App Store guidelines related to other native app stores.” Also, Apple explains “if Apple were to be forced to allow alternative app stores or sideloading, the increased risk of malware attacks would put all

to download native apps on iPhone.

Google Play is an app store that opened in 2008 as Android Market[123], and prior to its opening, an SDK was released to enable third-party software developers to develop and provide apps for Android[124]. In 2012, the name was changed from Android Market to Google Play. At that time, there were about 450,000 apps on Google Play[125]. As of 3Q 2022, there are 3.55 million native apps on Google Play[126]. Google Play is pre-installed on many Android devices under a contract between Google and smartphone manufacturer, such as MADA mentioned in Chapter 4-2-(1).

In addition, on Android devices, it is possible to install other app stores. Other app stores such as Amazon Appstore or Samsung Galaxy Store can be used to download apps[127].

Almost at the same time as the global launch of app stores, smartphones with app stores began to be released in Japan. The first smartphone with app store released in Japan was iPhone 3G released in 2008[128]. In 2009, an Android device with app store, "HT-03A," was released[129]. Since then, as the distribution of apps through app stores has been promoted and increased, apps have been developed and provided not only for entertainment purposes such as music, videos, and games, but also for purposes rooted in daily life such as SNS and shopping[130]. For example, LINE, one of the SNS apps was released in 2011, and Amazon's online shopping app was released in 2010.

(2) Distribution of native apps in each mobile ecosystem without using Google Play and App Store

As mentioned in introductory clauses of this Chapter, in addition to using Google Play or App Store, downloading from other app stores and side-loading are also methods for consumers to download native apps. The following describes the possibility of downloading from other app stores and side-loading on each of Android and iOS devices.

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users at greater risk."

123 Official blog page for Android app developers (October 22, 2008)
https://android-developers.googleblog.com/2008/10/android-market-now-available-for-users.html

124 Official blog page for Android app developers (September 23, 2008)
https://android-developers.googleblog.com/2008/09/announcing-android-10-sdk-release-1.html

125 Official Google website (March 6, 2012)
https://googleblog.blogspot.com/2012/03/introducing-google-play-all-your.html

126 Statista (Number of apps available in leading app stores as of 3rd quarter 2022)

127 Under section 4.5 of the Google Play Developer Distribution Agreement, developers are not allowed to use Google Play to distribute or make available any product (including software, contents and digital materials) that has a purpose that facilitates the distribution of software applications and games for use on Android devices outside of Google Play.

128 Apple Press Release (June 10, 2008)
https://www.apple.com/jp/newsroom/2008/06/09Apple-Introduces-the-New-iPhone-3G/

129 NTT DOCOMO Press Release (July 1, 2009)
https://www.docomo.ne.jp/info/news_release/page/090701_00.html

130 The MIC. 2020. "2020 WHITE PAPER Information and Communications in Japan," Part 1, Chapter 1, Section 1
https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r02/html/nd110000.html

A. Downloading from other app stores and side-loading in the Android ecosystem

The Android ecosystem allows both downloading native apps from other app stores and side-loading.

In the former case, native apps can be downloaded in two ways. Those apps can be downloaded from other app stores pre-installed on smartphones (e.g. Samsung Galaxy Store pre-installed on Samsung smartphones), or from other app stores which are acquired through side-loading (e.g. Amazon Appstore).

In order for a consumer to side-load app stores or other native apps, basically, change of setting is necessary. The steps are (i) run "Settings" screen, (ii) tap "Apps & Notifications," (iii) select detailed setting, then tap "Special app access," (iv) tap "Install unknown apps," (v) select apps used when installing APK files (Chrome, File Explorer, etc.), (vi) turn on "Allow from this source."

B. Downloading from other app stores and side-loading in the iOS ecosystem

As mentioned in Chapter 7-1-(1), the iOS ecosystem does not allow side-loading on iPhone, and it is not allowed to install any app store other than App Store on iPhone[131]. Therefore, consumers are not allowed to both download native apps from other app stores and side-load. Technically, it is not impossible to download native apps to iPhone without going through App Store, but judging from the fact that such conduct is prohibited by a software license agreement with Apple[132], these practices are not usually an option for consumers.

2. Evaluation of competitive pressure

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131 With regard to so-called cloud games, Apple states in the App Store Review Guidelines 4.9, "Streaming games are permitted so long as they adhere to all guidelines—for example, each game update must be submitted for review, developers must provide appropriate metadata for search, games must use in-app purchase to unlock features or functionality, etc." Also, Apple says "Streaming game services may offer a catalog app on the App Store to help users sign up for the service and find the games on the App Store, provided that the app adheres to all guidelines, including offering users the option to pay for a subscription with in-app purchase and use Sign in with Apple. All the games included in the catalog app must link to an individual App Store product page." Therefore, on iOS, it is possible to provide catalog apps that introduce multiple games within a single app, but it is not possible to use multiple games from the catalog app without going through App Store unless it is done through browsers or web apps (some developers have chosen this method). It can be said that the provision of apps similar to app stores is also restricted.

132 Under the Apple's Software License Agreement (iOS15), "Apple Pay & Wallet Supplemental Terms and Conditions," "6. Security; Lost or Disabled Devices," the use of the modified iPhones for Apple services is explicitly prohibited. This is because if users undertake illegal conversions such as nullification of hardware control or software control, conditions for access and use of Apple services cannot be met.
https://www.apple.com/legal/sla/docs/iOS15_iPadOS15.pdf
Apple's website also strictly cautions that any software that trespasses iOS should not be installed, and states that unauthorized changes to iOS violate the software license agreement.
https://support.apple.com/en-us/HT201954

To assess competitive pressure on Google Play and App Store, it is necessary to consider from three viewpoints: (i) competitive pressure between Google Play and App Store, (ii) competitive pressure from other app distribution channels such as downloading from other app stores, side-loading, and using web apps via the browser, (iii) competitive pressure from the app distribution on the other types of devices such as PCs and video game consoles[133].

(1) Competitive pressure between Google Play and App Store

The JFTC will evaluate whether Google Play and App Store can become competitive pressure on each other in the app distribution service market from the same viewpoint as mentioned in Chapter 6-2-(1)-A and B, that is, from the viewpoint of consumer switching and competitive pressure from app developers[134].

A. Consumer switching between Google Play and App Store

Google Play and App Store are respectively provided with smartphones and mobile OS that are components of the mobile ecosystem. Switching between mobile ecosystems entails switching costs pointed out in Chapter 6-2-(1)-A-(B), and it is not easy.

If native apps available on Google Play and App Store are substantially different in terms of type, price, etc., and that difference is important to consumers, there could be an incentive for consumers to change the mobile ecosystem. Then, switching between Google Play and App Store can be caused when consumers replace their smartphones. However, according to the survey for app developers, the majority of app developers provide native apps to both Android app stores such as Google Play and iOS app store (App Store)[135].

In fact, most of apps that are popular with consumers are provided on both Google Play and App Store[136], as shown in Figure 7-1.

In addition, according to the survey for app developers, few app developers set different price for native apps and digital content for each app store, as shown in Figure 7-2.

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133 Note that the potential competitive pressure on Google Play and App Store from the entry of the new mobile ecosystem will not be considered in the following part. This is because such new entry is very difficult as mentioned in Chapter 6.

134 Since smartphone manufacturers other than Apple cannot pre-install App Store on their smartphones, the JFTC do not evaluate competitive pressure between Google Play and App Store from the viewpoint of smartphone manufacturers.

135 All of these app developers provide native apps to both Google Play and App Store.

136 For example, the JFTC checked the top 200 apps on the free apps rankings (meaning the rankings based on the number of downloading native apps for free, hereinafter referred to as the "free apps rankings") of both the app stores. The JFTC found that 195 apps in the free apps ranking of App Store were also available on Google Play, while 159 apps in the free apps ranking of Google Play were also available on App Store (as of June 17, 2022). The ratios of free native apps downloads to all the native apps downloads are 96.70% for Google Play and 93.90% for App Store respectively.
Business of Apps
https://www.businessofapps.com/data/app-stores/

Regarding this reason, according to interviews for app developers, some app developers say that they basically set no difference between app stores in the quality, product lineup, price of native apps and digital content in order to avoid dissatisfaction from the other mobile OS users.

Therefore, there is no incentive for consumers to switch between Google Play and App Store (or thus change the mobile ecosystem).

Figure 7-1. The app stores where app developers provide their apps[137]

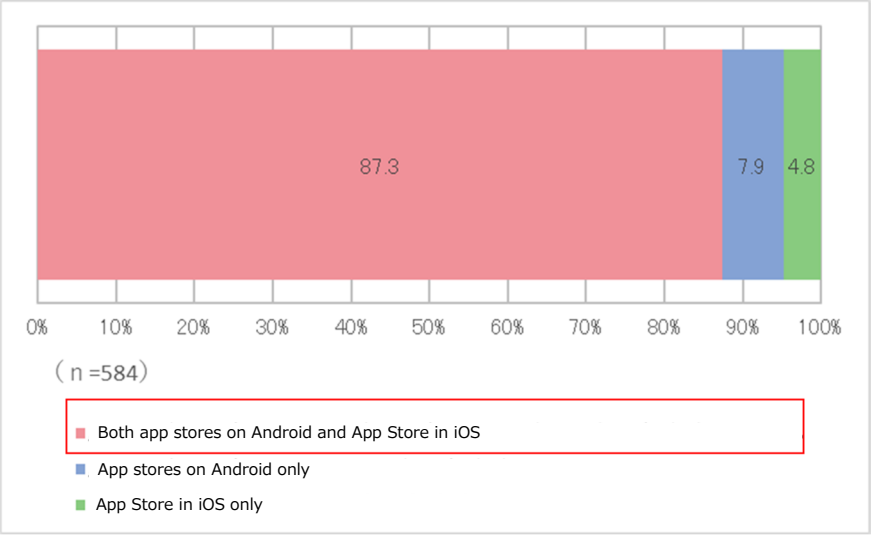
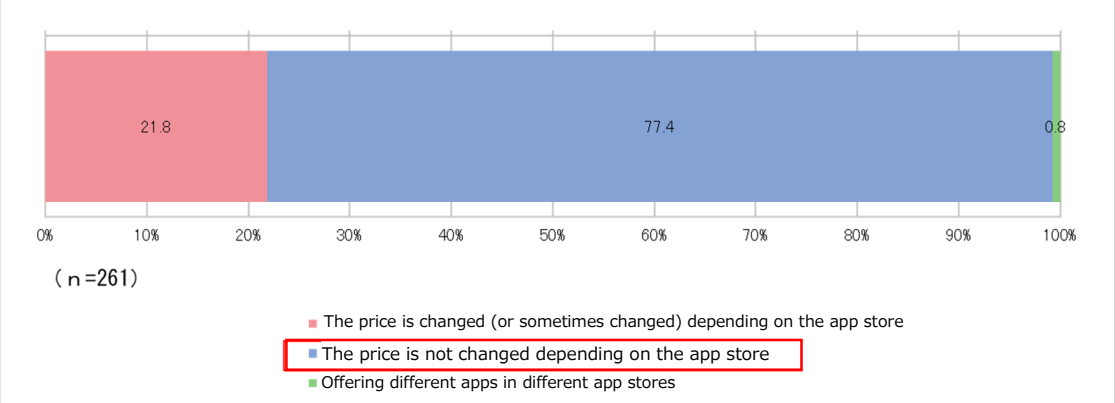


Figure 7-2. The ratio of app developers that change the price for native apps or digital content in native apps depending on the app stores



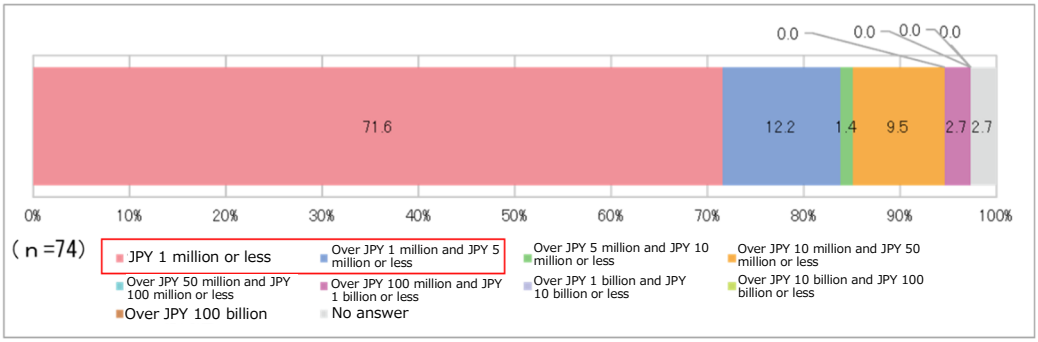
B. Competitive pressure from app developers

137 The figures are totaled excluding the app developers that answered they do not currently have any app open to the public.

As mentioned in Chapter 6-2-(1)-B, for app developers, it is reasonable to provide native apps for both Android and iOS. If native apps are provided for both Android and iOS, it is reasonable to provide native apps for both Google Play and App Store, which are the app stores most commonly used by consumers in each ecosystem. Therefore, from the viewpoint of app developers, Google Play and App Store are not in a binary relationship but in a relationship that is replaced by switching.

In fact, as mentioned in 2-(1)-A, the majority of app developers offer native apps for both Google Play and App Store. In addition, as shown in Figure 7-3, there are many app developers whose sales amount related to app provision is smack among those developers that provide native apps only to either of Google Play or App Store.

Figure 7-3. Sales of app developers that provide native apps only to either Google Play or App Store



As mentioned above, consumers do not have incentive to switch between Google Play and App Store, while app developers use both Google Play and App Store and they are not substitutable. Therefore, the JFTC conclude that there is not effective competition between Google Play and App Store.

(2) Competitive pressure from app distribution channels that do not go through Google Play or App Store

In the app distribution service market, there are various ways to obtain or use apps without going through Google Play or App Store, as mentioned in introductory clauses of this Chapter. That is to say, downloading from other app stores (method (B-1)), side-loading (method (B-2)), and using web services (especially web apps) via the browser (method (C)) are possible. If these methods are an alternative to downloading native apps from Google Play or App Store for consumers and app developers, they can be considered as competitive pressure on the Google Play and App Store in the app distribution service market. Therefore, in the following section, the JFTC will examine whether each method causes competitive pressure on the Google Play and App Store in the app distribution service market.

A. Competitive pressure from other app stores

As mentioned in Chapter 5-3, the development and maintenance of an app store requires significant costs. An app store is a product that has a strong economy of scale, and it is important to secure a sufficient number of users in order to monetize them. In the following section, the JFTC will examine how likely other app stores, including newcomers, are to achieve critical mass in each mobile ecosystem, namely, whether there are (potentially) other app stores within each mobile ecosystem that exert competitive pressure on Google Play and App Store.

(A) iOS ecosystem

As mentioned in 1-(2)-B, app stores other than App Store cannot be installed on iPhone. Therefore, there is currently no room for new app stores to enter the iOS ecosystem, and competitive pressure from other app stores cannot be exerted on App Store.

(B) Android ecosystem

a. Consumers' use of other app stores

As mentioned in 1-(2)-A, consumers can use other app stores on Android. There are indirect network effects between consumers and app developers, and the benefits of using an app store for consumers depend on the number and quality of apps provided on the app store, as mentioned in Chapter 5-1.

When it comes to the number of apps available, Google Play has the highest number of native apps among app stores available on the Android ecosystem, followed by Amazon Appstore, which has approximately 480,000 native apps (as of third quarter 2022)[138], about one-fifth of native apps on Google Play[139].

The next consideration is whether apps available on app stores can sufficiently meet users' needs in terms of quality. Figure 7-4 shows the top 30 apps with the highest number of users[140] based on an estimate of the number of app users in Japan from January to October 2022. Among the top 30 apps, the Amazon Appstore also provided six apps, while Huawei AppGallery and Samsung Galaxy Store each provided three

138 Statista (Number of available apps in the Amazon app store from 1st quarter 2015 to 3rd quarter 2022) https://www.statista.com/statistics/307330/number-of-available-apps-in-the-amazon-appstore/

139 According to the website of Huawei affiliate, more than 45,000 native apps (as of July 2022) are posted on the Huawei AppGallery, which is the official app distribution platform for Huawei devices.

140 Values Inc. "[Survey Release] Website & app market user ranking 2022 was announced! In terms of the number of app users, Instagram surpassed Twitter to take third place. Rapid increase in users among seniors in their 60s." (December 6, 2022) https://www.valuesccg.com/news/20221206-5336/

apps. From this fact, it can be said that even popular apps that are frequently used by many consumers are often not available on Amazon Appstore etc.

Figure 7-4. Ranking of the number of app users in 2022

Top 30 apps with the highest number of users

Rank	App name	Category	2021 Number of UUs (estimated)	YoY
1	LINE	Communication	93,493,000	103.2%
2	PayPay	Finance	60,329,000	111.8%
3	Instagram	Social network	59,622,000	109.9%
4	Twitter	Social network	56,947,000	103.4%
5	Amazon shopping	Shopping	56,859,000	104.2%
6	Yahoo!	News & magazines	55,849,000	108.3%
7	Rakuten ichiba	Shopping	52,519,000	106.5%
8	d POINT Club	Shopping	48,815,000	111.9%
9	McDonald's	Foods and drinks	45,100,000	102.8%
10	Facebook	Social network	42,002,000	98.8%
11	Mercari	Shopping	39,402,000	100.3%
12	7-Eleven	Life style	38,455,000	107.9%
13	SmartNews	News & magazines	37,514,000	103.1%
14	d payment	Finance	36,978,000	109.6%
15	T-POINT	Life style	34,926,000	112.2%
16	Rakuten PointClub	Life style	34,614,000	114.8%
17	UNIQLO	Shopping	32,526,000	101.4%
18	Individual Number Card Points	Tool	32,295,000	169.7%
19	Rakuten card	Finance	31,534,000	114.5%
20	Mynaportal	Tool	31,396,000	371.3%
21	Lawson	Life style	30,370,000	109.8%
22	Rakuten Pay	Finance	30,121,000	119.6%
23	Prime Video	Entertainment	29,003,000	105.7%
24	Rakuten point card	Life style	28,192,000	119.4%
25	Ponta	Life style	27,567,000	118.5%
26	Y! Weather	Weather information	27,562,000	98.0%
27	Yahoo! Shopping	Shopping	27,365,000	109.8%
28	au PAY	Finance	26,817,000	108.0%
29	Y! Mail	Communication	26,241,000	106.8%
30	Y! Transit information	Map & navigation	26,185,000	105.4%

* Totaling period: January to October 2022, Devices surveyed: smartphones ©VALUES,Inc

* "Number of UUs (estimated)" means the number of Unique Users who ran the app, and is estimated based on the rate of appearance on monitors owned by VALUES and the population of the domestic Internet users.

In addition, according to the consumer survey regarding the number of native apps downloaded to current smartphones by each app store, Google Play accounts for 97.4% of the total number of native apps downloaded, as shown in Figure 7-5.

Figure 7-5. App store usage status when downloading native apps to the smartphone currently used, and the number of native apps downloaded by each app store (multiple answers are allowed for the app stores used)

(n = 1,000)	Number of users (ratio)	Number of download (ratio)
Google Play	827 (82.7%)	14,729 (97.4%)
Amazon Appstore	50 (5.0%)	189 (1.2%)
Samsung Galaxy Store	14 (1.4%)	65 (0.4%)
Huawei AppGallery	8 (0.8%)	117 (0.8%)
Other app stores	3 (0.3%)	29 (0.2%)
Not download any app	164 (16.4%)	-

This suggests that the number of consumers using other app stores is limited.

In this regard, in interviews with a game maker having popular digital content and providing app stores themselves, the maker said, “There is a trend of downloading native apps from the official app store for each OS, and it is very rare that consumers take the trouble to download our app store and furthermore download our native apps from our app store.” This suggests that it is very difficult for other app stores to acquire consumers who use them.

On the other hand, other app store operators commented that they are considering growing their app stores as game platforms in order to differentiate them from App Store and Google Play. This suggests that other app store operators are not currently incentivized to run their app store as a replacement for Google Play, which distributes a large number of apps of all genres.

Therefore, other app stores do not match Google Play in terms of the number and quality of available apps, and other app store operators themselves do not operate those app stores as an alternative to Google Play. At present, other app stores do not offer consumers the same benefits as those obtained by using Google Play.

b. Provision of apps to other app stores by app developers

As mentioned in Chapter 5-1, there are indirect network effects between app developers and consumers for app stores. For app developers, the expected benefit of providing native apps on an app store depends on the number of consumers using the app store. Thus, when app developers choose an app store to provide their native apps,

they place importance on the number of users in the app store. In this regard, an app store operator that posts its own and other developers' game apps said, “We are considering measures such as presenting incentives for providing apps in order to attract app developers. However, at present, consumers are less aware of our app store. We feel our app store is not demonstrating the value to app developers when compared to App Store or Google Play.”

In fact, according to the survey for app developers, 76.5% of the developers who answered that they have never provided their apps to app stores other than Google Play and App Store in the past three years, as shown in Figure 7-6. As for the reason, as shown in Figure 7-7, 76.3% of developers answered that the number of users in app stores other than App Store and Google Play was low, indicating that the number of users in other app stores is important for app developers to determine an app store to provide their native apps.

In addition, app developers need to create native apps for each app store, such as supporting the payment system for each app store, even if they are native apps for Android with the same content. Therefore, the cost of providing native apps to multiple app stores is not zero, and the operational cost increases as the number of app stores to provide apps increases. On the other hand, as shown in Figure 7-8, many app developers account for higher sales on Google Play and App Store compared to other app stores. Even if app developers provide their apps on other app stores, in most cases the ratio of sales to those other app stores is less than 20%. It is suggested that app developers earn very limited revenue from other app stores when providing native apps in the Android ecosystem.

Figure 7-6. The percentage of app developers that have provided native apps to app stores other than Google Play and App Store

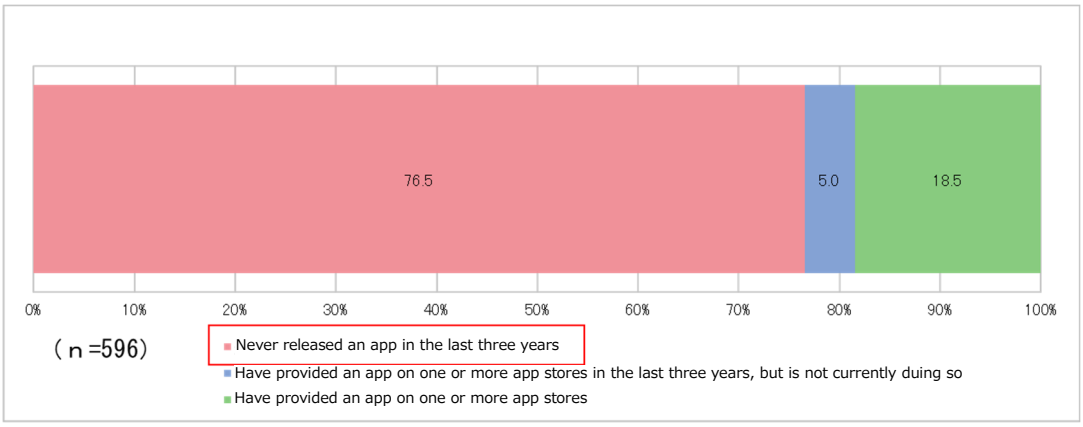


Figure 7-7. Reasons why native apps have not been provided on app stores other than App Store and Google Play in the last three years (multiple answers allowed)

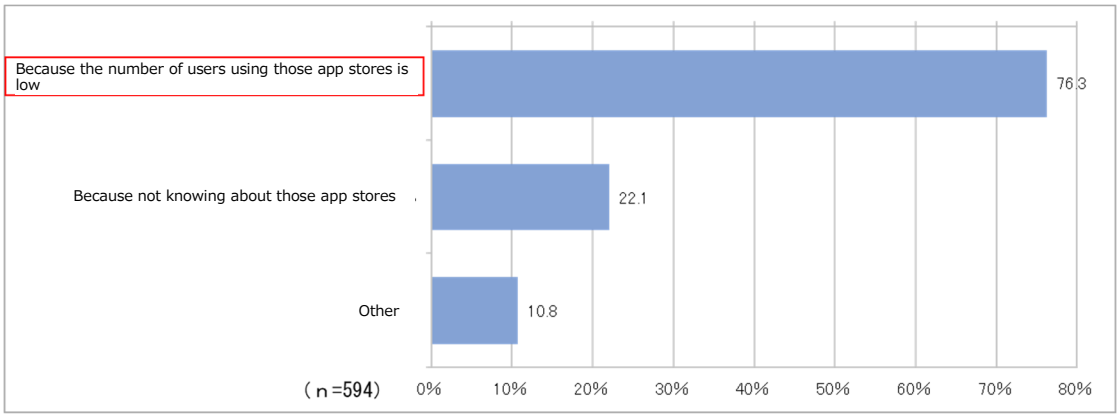
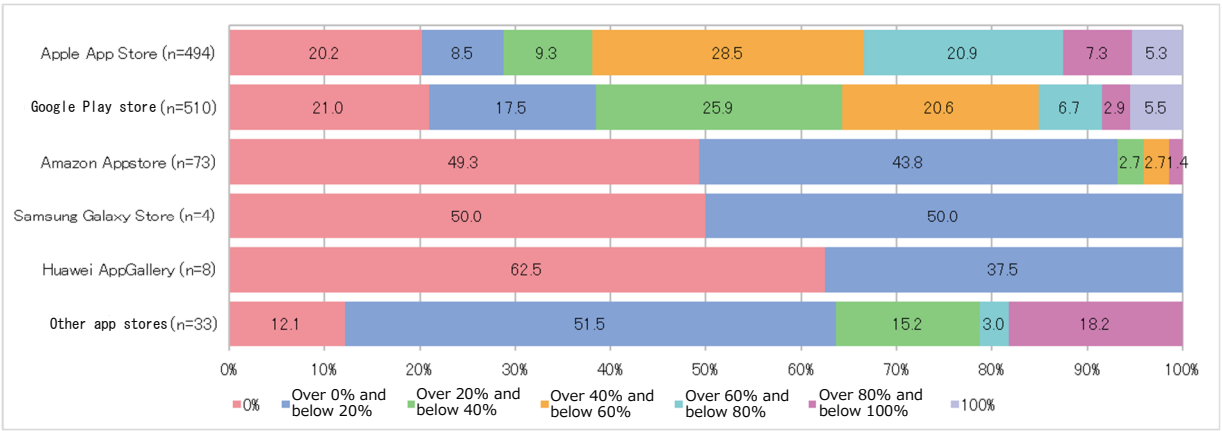


Figure 7-8. The percentage of sales amount of each app store accounting for the sales amount of providing native apps



Therefore, at present, the incentive of app developers trying to provide native apps to other app stores even with additional operational costs is not significant.

c. Pre-installation of other app stores on devices of smartphone manufacturers

Smartphone manufacturers can pre-install other app stores at the time of shipment of smartphones manufactured by themselves, leading to competitive pressure to be applied on Google Play if those app stores are pre-installed on many devices.

The technology and funds required for smartphone manufacturers to pre-install other app stores on their smartphones are not large compared to the cases of mobile OS mentioned in Chapter 6-2-(2). Also, it is technically possible to pre-install multiple app stores. In fact, a certain number of active and running Android devices have pre-installed app stores other than Google Play. However, a smartphone manufacturer said,

“The more apps we put in, the more expensive it costs to check their operation. Therefore, basically we don't want to increase the number of apps. In fact, we have refused most of requests from app developers to pre-install apps,” "Some consumers say that they don't need a pre-installed app,” “Our policy is that we don't pre-install apps that consumers will deem unnecessary, as determined referring to the results of surveys on consumer needs and questionnaires on products.”

Therefore, when smartphone manufacturers choose an app store to pre-install on their devices, Google Play, which is used by many consumers and app developers and considered as a “virtually essential app for using Android smartphones” by smartphone manufacturers, is likely to be chosen. On the other hand, as mentioned in (B)-a, the incentive to choose other app stores, which are not on a par with Google Play in terms of the number and quality of apps, and which have limited consumer usage, is not significant at present.

d. Whether it is possible for new enterprises entering the market to develop and deploy new app stores

In order for new enterprises entering the market to develop and deploy app stores, it is necessary to distribute SDKs to app developers, build charging and refund systems, update the system as needed, and invest a large amount of money.

It is important to increase the number of users and gain critical mass in the development and deployment of app stores. As described in (B)-a to (B)-c, there is little incentive for consumers, app developers, and smartphone manufacturers to actively use and install app stores other than Google Play. Google Play has already achieved the critical mass; indirect network effects work effectively; and a lock-in effect is generated. Considering these facts, other app stores that do not achieve the critical mass are difficult to acquire users. For this reason, it is unlikely that new enterprises entering the market[141] will develop and deploy app stores, creating strong competitive pressure on Google Play.

e. Brief summary

Given the above, it is unlikely that other app stores provided by enterprises other than Google will exert significant competitive pressure on Google Play.

141 In a lawsuit between Epic Games and Google, according to some reports, Epic Games alleged that Google had paid major game companies to prevent them from opening their own app stores. https://www.reuters.com/technology/google-agreed-pay-360-mln-activision-stop-competition-epic-games-alleges-2022-11-17/

B. Competitive pressure from side-loading

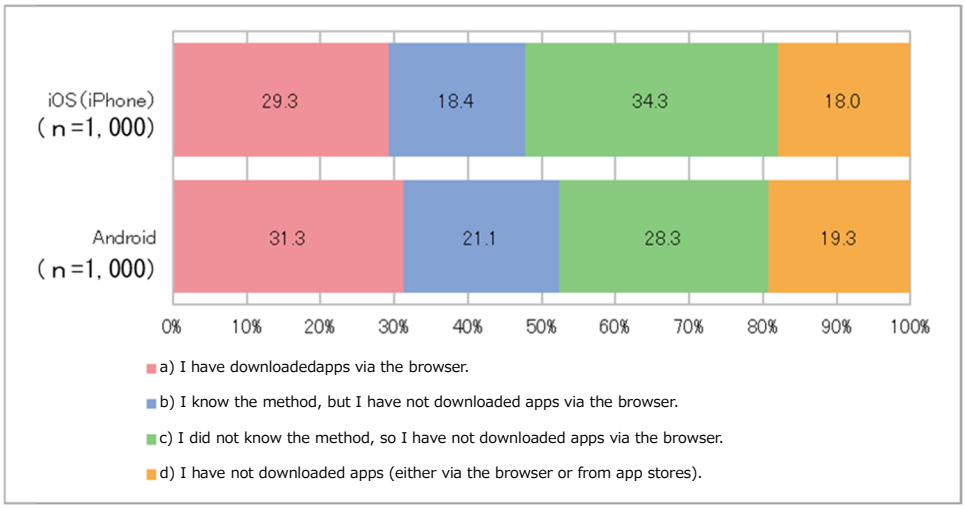
As mentioned in introductory clauses of this Chapter, side-loading is another way for consumers to install native apps on their smartphones, in addition to downloading native apps from app stores. With regard to side-loading, in particular, the JFTC will consider the competitive pressure of side-loading via the browser, which enables to install native apps without using a device other than a smartphone (such as a PC or tablet).

(A) Evaluation regarding iOS

On iOS, as mentioned in 1-(2)-B, in addition to not allowing the installation of other app stores, side-loading via the browser is not permitted. For this reason, side-loading via the browser cannot be effective competitive pressure on App Store.

In the consumer survey result regarding side-loading via the browser, 29.3% of iOS users said they had downloaded native apps via the browser, as shown in Figure 7-9. In this regard, given the fact that side-loading via the browser is prohibited under the software license agreement on iOS, it can be assumed that the consumer who responded with the answer has moved from the browser to the app store and downloaded an app or has added a progressive web app (PWA)[142] icon to the home screen. If a consumer moves from a browser to an app store and downloads an app, it means that not only the browser would not become effective competitive pressure on App Store, but it is also driving consumers to App Store to a certain extent.

Figure 7-9. The percentage of consumers who have downloaded apps via the browser



142 Progressive web app (PWA) is a technology that allows web apps designed for mobile devices such as smartphones to be treated like native apps. PWAs allow users to create icons on their home screen and access them to launch native apps.

(B) Evaluation regarding Android

In order for consumers to side-load apps via the browser on Android, additional setting changes as described in 1-(2)-A are necessary. Therefore, there are a certain number of consumers who do not know that side-loading is possible. In fact, some app developers said that downloading apps from app stores is common on Android, and that almost no users are side-loading apps via the browser.

In addition, according to the survey for app developers, only 6.9% of the app developers have developed and provided apps by side-loading via the browser, as shown in Figure 7-10. As for the reasons why app developers do not develop and provide native apps by side-loading via the browser, as shown in Figure 7-11, some developers cited the time required to build and support a system for side-loading, but most cited the inability to secure the number of users.

Figure 7-10. The percentage of app developers that have developed and provided native apps by side-loading via the browser

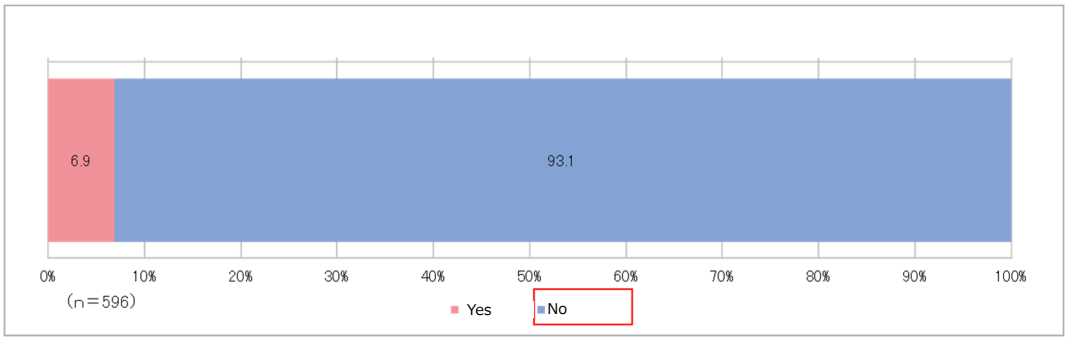
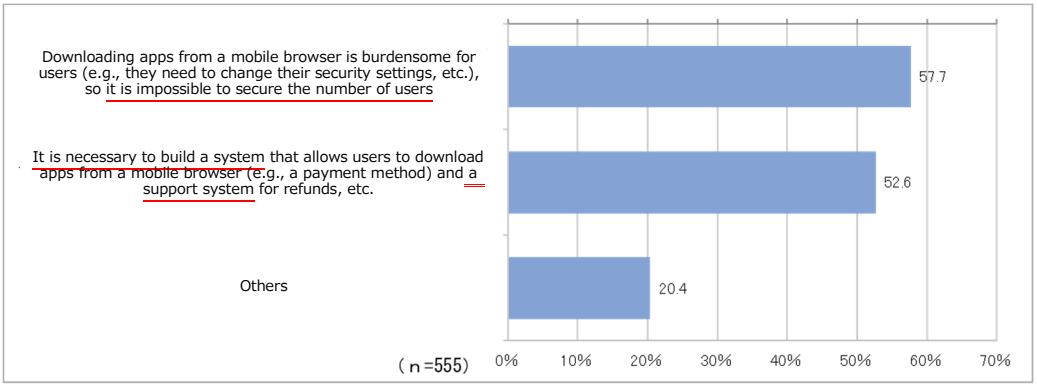


Figure 7-11. Reasons why app developers do not develop and provide native apps by side-loading via the browser (multiple answers allowed)



In this regard, in interviews to app developers, “in order for consumers to side-load

apps, a cumbersome procedure is necessary, and a security warning is also displayed. The user experience on the app store (downloading the desired app smoothly with as few operations as possible) is important, and Google and Apple campaigns are only available on their official app store. Therefore, basically, downloading apps from the main store for each OS will be the main means."

Thus, side-loading via the browser is not effective competitive pressure on Google Play.

Unlike iOS, side-loading via the browser is allowed on Android, but as shown in Figure 7-9, in the consumer survey result, the percentage of Android users who have downloaded apps via the browser is 31.3%, which is not much different from 29.3% of iOS users.

Given that this consumer survey result (Figure 7-9) are not much different from that of iOS users, it can be inferred that a certain percentage of consumers who said they had downloaded apps via the browser moved from the browser to the app store to download apps, or added a progressive web app (PWA) icon to their home screen. Even on Android, if a user moves from a browser to an app store and downloads an app, it means that not only the browser would not become effective competitive pressure on Google Play, but it is also driving consumers to Google Play to a certain extent.

C. Competitive pressure from using web services (especially web apps) via the browser

In addition to native apps, app developers can provide web services via the browser, which provide consumers with an access point to digital content and services. As web services via the browser, in particular, web apps can be considered.

As mentioned in Chapter 3-3, a web app is an app that can provide digital content and services via the browser without relying on a mobile OS or an app store. It is unnecessary to develop for each mobile OS or support updates in app stores. Basically, only one type of web app needs to be developed. Therefore, development and maintenance costs can be small compared to native apps. For this reason, there are actually app developers that provide digital content and services mainly for web apps rather than native apps. In addition, Apple and Google have acknowledged that web apps can be as rich as native apps in terms of functions, usability, and user experiences, or that web apps and native apps are functionally almost replaceable.

On the other hand, web apps do not need to be installed. With the exception of some hardware functions, such as cameras, they usually do not have access to hardware functions. As a result, compared to native apps, web apps have limited functions. In particular, for security and privacy reasons, Apple has established the App Store Review Guidelines for apps to browse web pages, such as any browser on iOS, specifying the use of the browser

engine called WebKit[143]. Thus, the functions of web apps on iOS are limited to the functions supported by WebKit. For example, a browser based on WebKit does not prompt a user to add an icon to the home screen, and the consumer needs to click the "Share" button on the browser, scroll and select the "Add to Home Screen" function.

Although Google does not require the use of a specific browser engine, it does not provide access via Chrome for some hardware functions. According to Google, this is because Chrome has not yet had an API for such a function, or because making it accessible from the web may impact security and privacy, and thereby hardware functions may not be provided. Also, Google has taken measures to reduce the confidentiality of data sent from smartphones to web apps[144].

As a result, native apps often provide a better user experience than web apps. For example, compared to web apps that are processed on a browser, it is possible for app developers to design native apps specialized in the content of digital content and services provided. In this regard, an app developer that provides a service for users to communicate with each other, such as exchanging messages, said, "For users of our services, it is important to be able to respond quickly when they receive a message. In browsers, it may be inconvenient to display and send notifications. If the user experience is inferior to other services, the number of users will decrease quickly. So it is necessary to provide the service in the way that offers the best user experience, and it is difficult to make a decision to provide the service via the browser."

Furthermore, it is pointed out that one of the reasons for the spread of smartphones is the characteristic of them, which allows users to select the functions they want to use on a service-by-service basis, regardless of hardware, from a myriad of apps[145]. When users try to use digital content and services on their smartphones, it seems that they are thinking about using native apps first. In fact, according to the survey for app developers, many developers answered that web apps are less likely to be recognized and discovered by users than native apps provided on app stores, as shown in Figure 7-20.

In addition, according to the consumer survey, the usage rate of each service on the browser is lower than that on native apps, as shown in Figures 7-12 to 7-17. In particular, messenger apps and games are rarely used on the browser. Moreover, as shown in Figure 7-18, the most common reason for using each service on native apps rather than via the browser is that native apps have better operability and functionality.

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143 App Store Review Guidelines 2.5.6

144 Google pointed out that this was because there was no gatekeeper or disable functions when users click a link on the web, so the potential threat posed by web apps is different from that of native apps.

145 The MIC. 2019. "2019 WHITE PAPER Information and Communications in Japan," Part 1, Chapter 1, Section 1.
https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r01/html/nd111110.html

Figure 7-12. The percentage of consumers using messenger apps (LINE, Messenger, etc.) on native apps

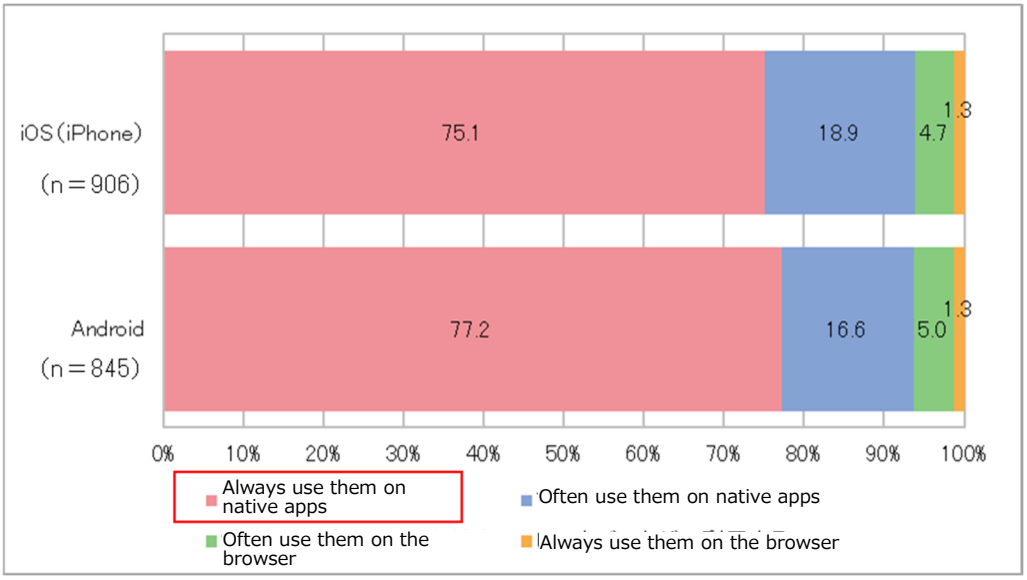


Figure 7-13. The percentage of consumers using SNS (Twitter, Facebook, Instagram, etc.) on native apps

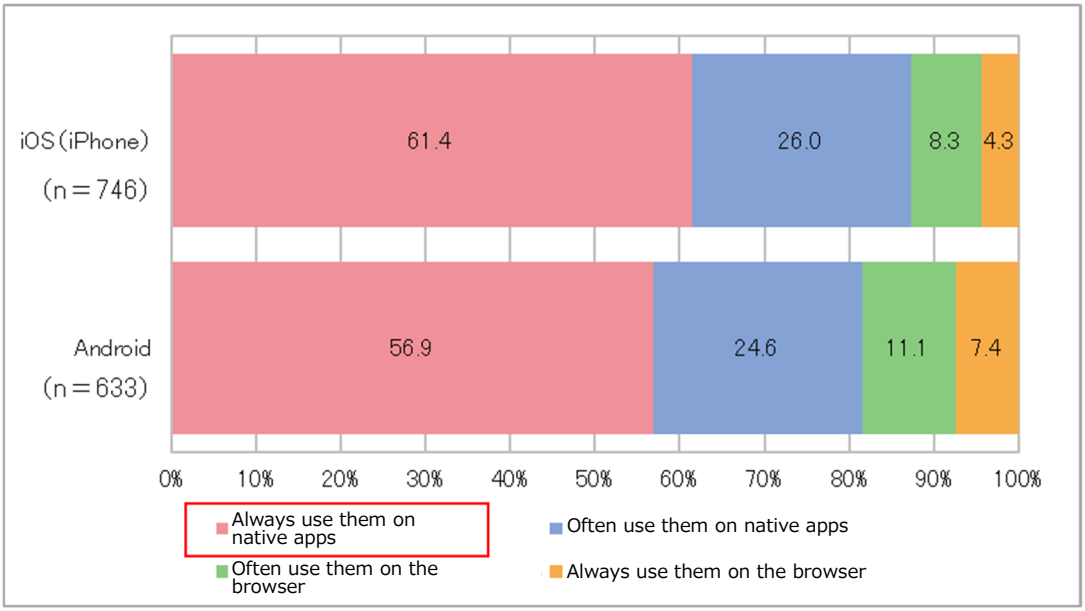


Figure 7-14. The percentage of consumers using music distribution services on native apps

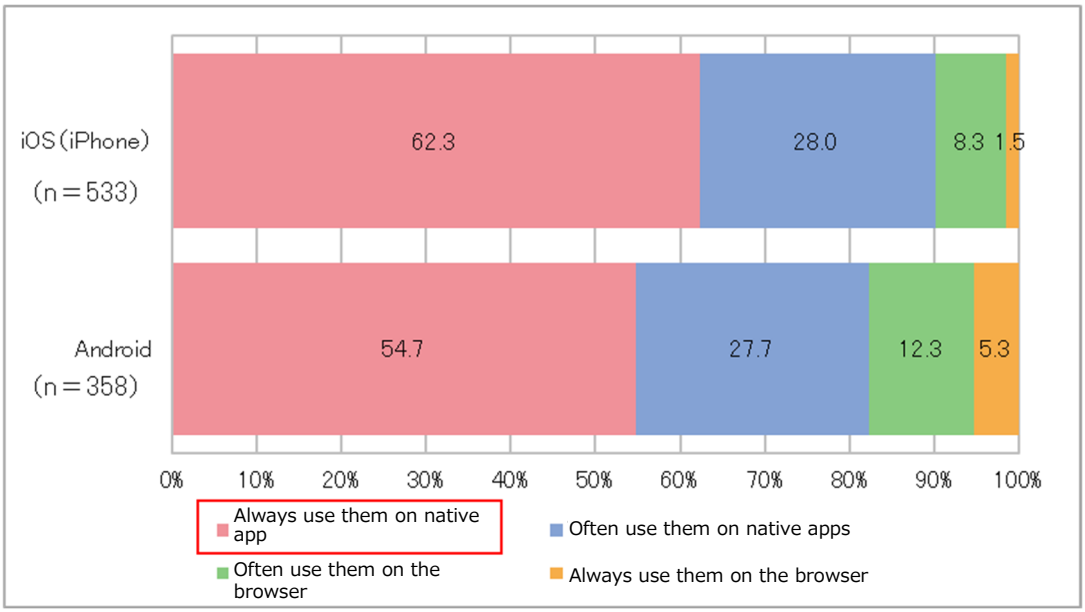


Figure 7-15. The percentage of consumers using video distribution services on native apps

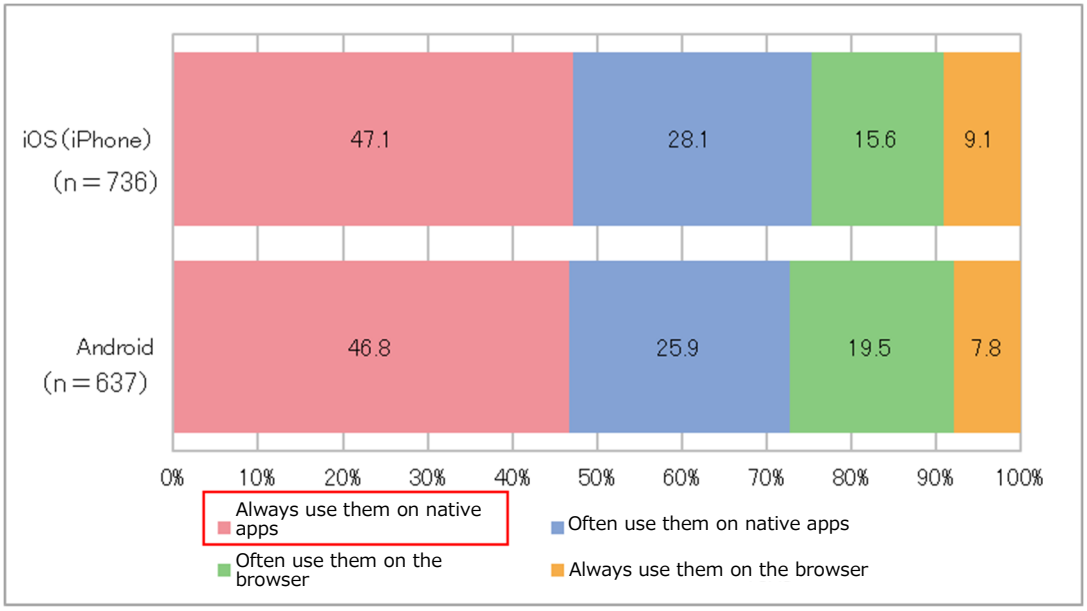


Figure 7-16. The percentage of consumers using e-books on native apps

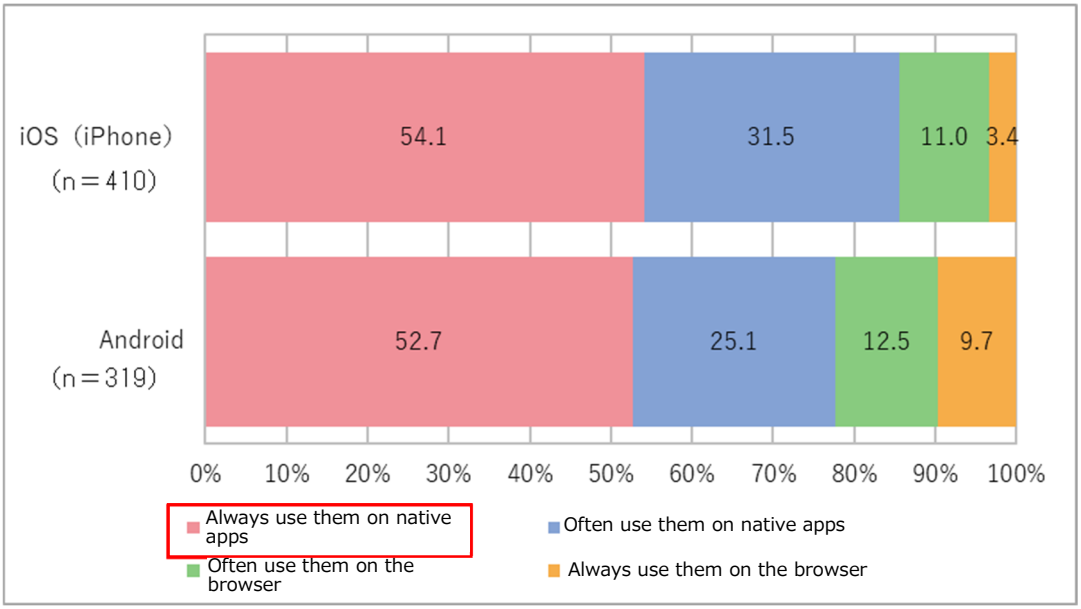


Figure 7-17. The percentage of consumers using games on native apps

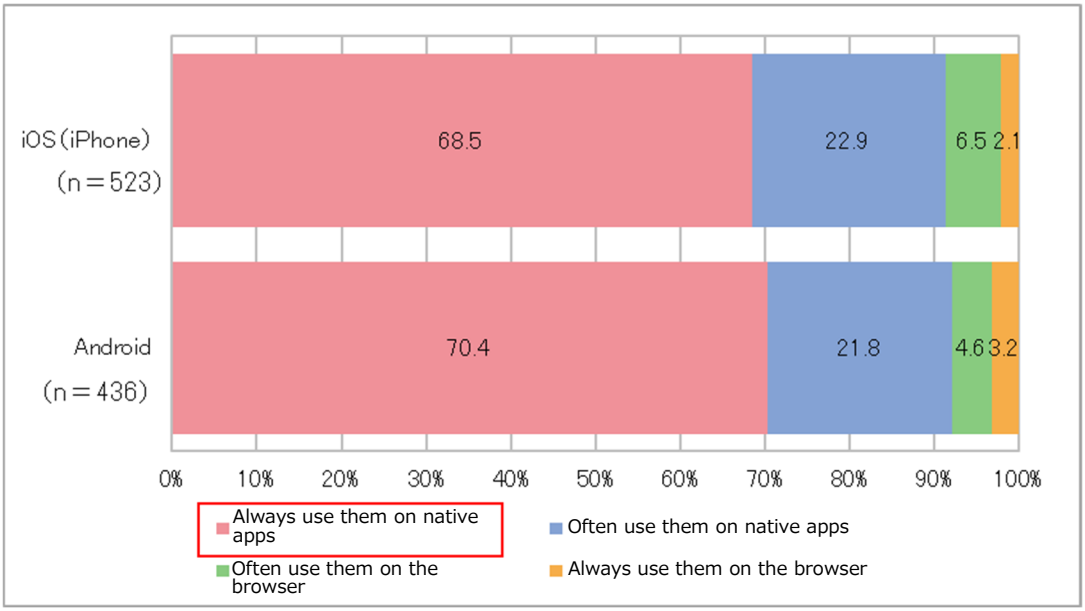
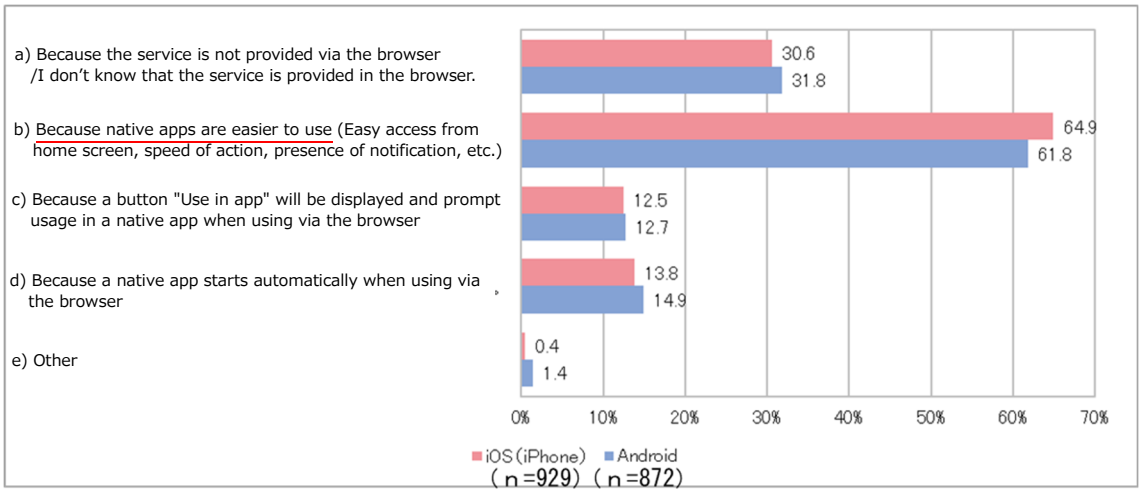


Figure 7-18. With regard to services used on smartphones, the reasons why consumers use the service mainly on native apps (multiple answers allowed)



In addition, according to the survey for app developers, only 28.4% of developers offer the same services as native apps with web apps, as shown in Figure 7-19. The reasons for not providing the same services as native apps with web apps are shown in Figure 7-20. Most developers cite the fact that web apps are less user-friendly than native apps, and many cite the fact that web apps are less recognizable and discoverable by users than native apps provided on app stores. In addition, dissatisfaction with the function of the web apps among app developers providing the same services as native apps with web apps are shown in Figure 7-21. Most developers cite poor user experience compared to native apps, and many cite the difficulty of acquiring repeat customers due to the difficulty of getting user habits.

Figure 7-19. App developers providing the same services as native apps with web apps

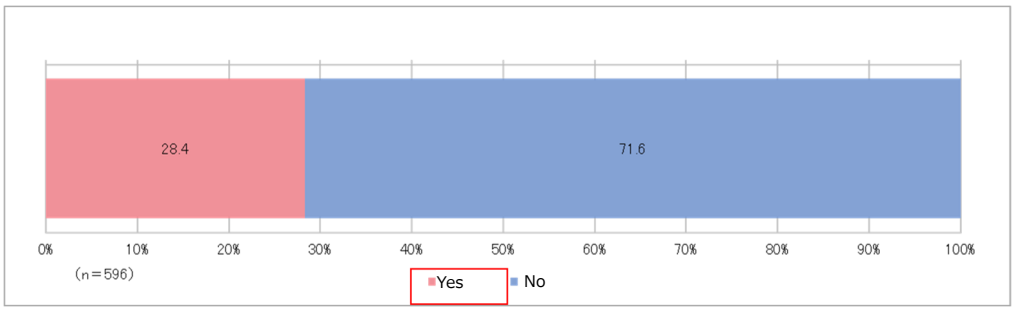


Figure 7-20. Reasons for not providing the same services as native apps with web apps (multiple answers allowed)

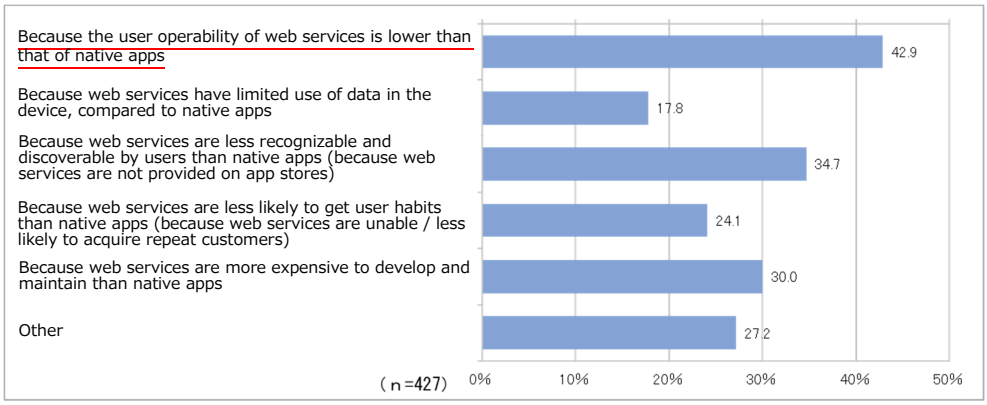
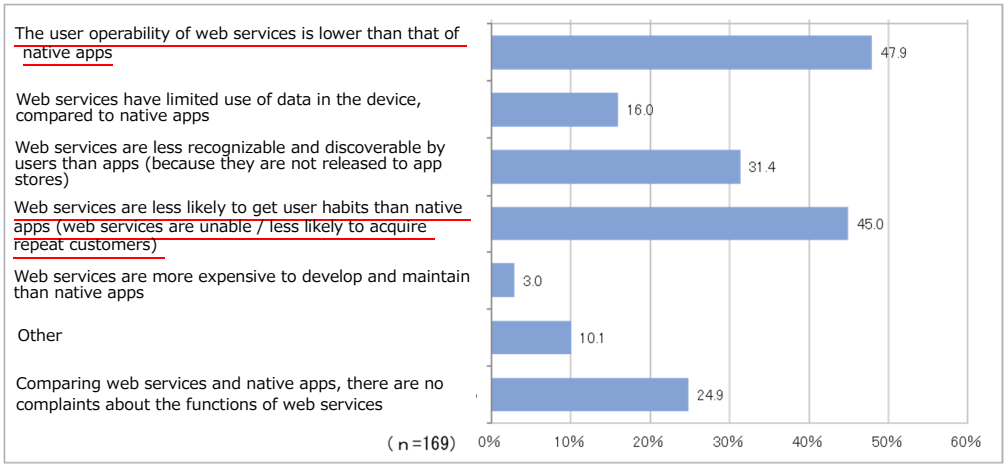


Figure 7-21. Dissatisfaction with the function of the web apps among app developers providing the same services as native apps with web apps (multiple answers allowed)



As a result, web apps are not alternatives to native apps for consumers today. Even for app developers, the incentive to offer web apps as alternatives to native apps is relatively low.

Figures 7-22 through 7-27 show the survey result for app developers on the sales amount related to the provision of native apps[146] and the sales amount related to the provision of web services[147].

First, Figures 7-22 and 7-23 show the distribution of sales amounts related to the provision

146 "Sales amount related to the provision of native apps" means the sum of sales of the apps themselves, sales amount by in-app payment, in-app advertising revenue, sales amount of developers' goods sold through the apps, commission revenue from stores using the apps.

147 "Sales amount related to the provision of web services" means the sum of charges within web services, sales amount of digital content (including subscriptions), advertising revenue within web services, sales amount of developers'' goods sold through the web services, commission revenue from stores using the web services.

of native apps and sales amounts related to the provision of web services. The sales amounts related to the provision of native apps tend to be higher than those related to the provision of web services.

As shown in Figures 7-24 and 7-25, the percentage of the sales of native apps themselves and charges within native apps (i.e., sales amount that are subject to commissions to Google or Apple) to the total sales amount tends to be higher than the percentage of charges and sales of digital content within web services to the total sales amount. In addition, 81.0% of app developers said they had no (zero) revenue from charges and sales of digital content within web services, which is a higher percentage than that of native apps (40.0%). Moreover, as shown in Figures 7-26 and 7-27, the percentage of advertising revenue within native apps to the total sales amount tends to be a higher than the percentage of advertising revenue within web services to the total sales amount.

This suggests that, at present, the provision of web services (especially web apps) via the browser is not an important distribution channel that can adequately replace the provision of native apps.

Figure 7-22. Sales amounts related to the provision of native apps (average over the last three business years)

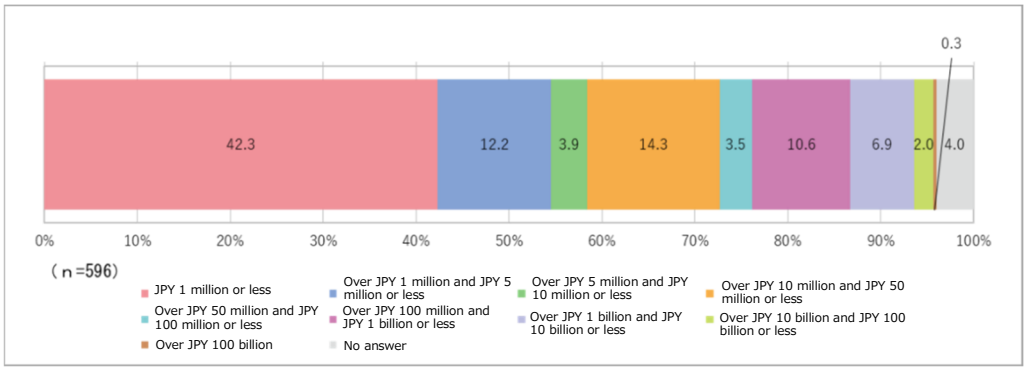


Figure 7-23. Sales amount related to the provision of web services (average over the last three business years)

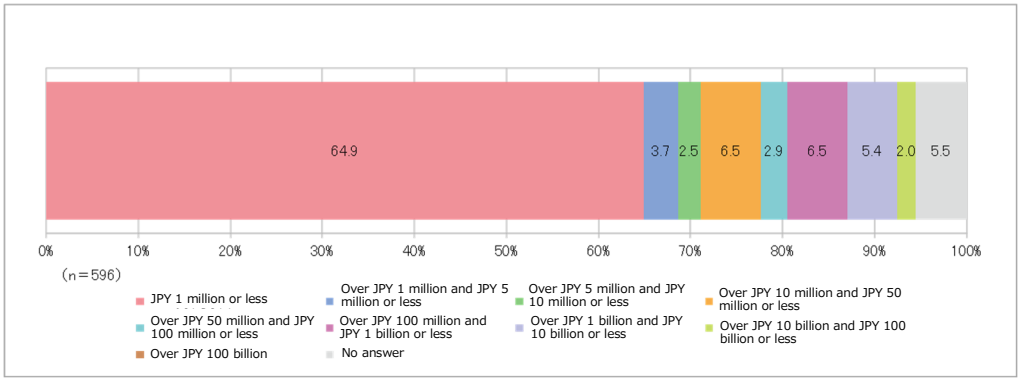


Figure 7-24. The percentage of sales of native apps themselves and charges within native apps to the total sales amount

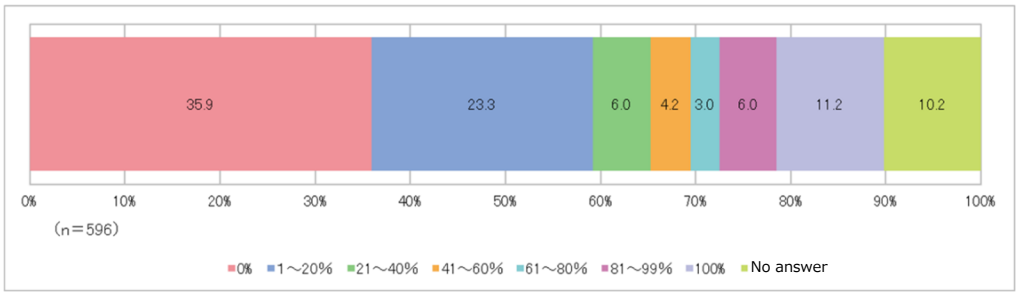


Figure 7-25. The percentage of charges and sales of digital content within web services to the total sales amount

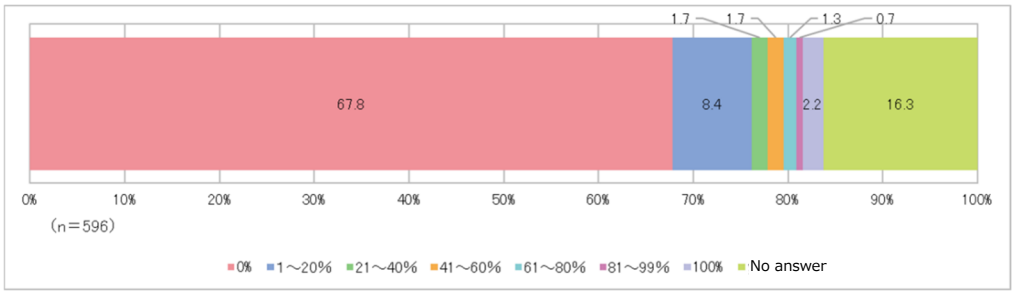


Figure 7-26. The percentage of advertising revenue within native apps to the total sales amount

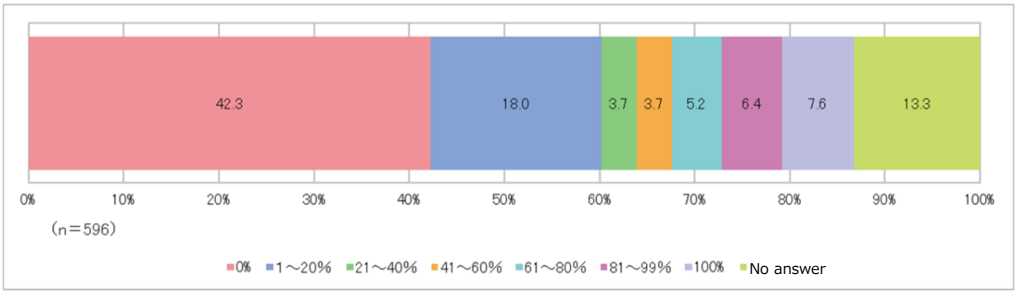
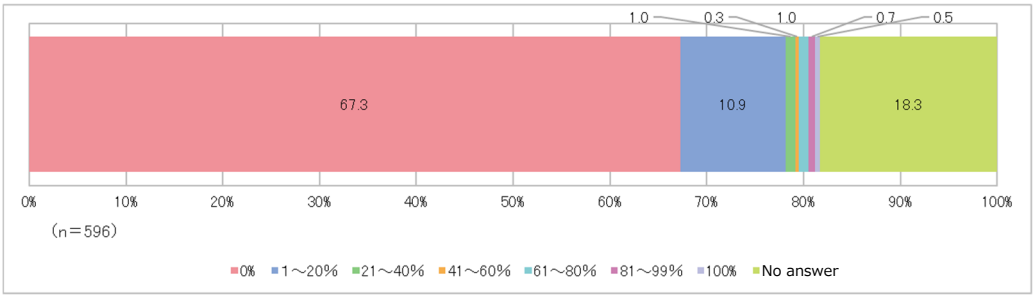


Figure 7-27. The percentage of advertising revenue within web services to the total sales amount



For these reasons, web apps are not sufficiently replaceable for native apps downloaded to smartphones from app stores, etc. For both app developers and consumers, the provision and use of web services (especially web apps) via the browser is not an important distribution channel that is sufficiently replace the provision and use of native apps via app stores. Therefore, at present, the provision of web services (especially web apps) via the browser is not effective competitive pressure on Google Play and App Store.

⑶ Competitive pressure from other types of devices

Some apps used on smartphones can be used on other types of devices such as PCs and video game consoles. If consumers do not care the types of devices to use apps and use the same apps on devices other than smartphones, there is a possibility that competitive pressure from the app distribution on other relevant devices may be exerted on the app distribution service market. Therefore, in the following section, as for apps used on consumers' smartphones, the JFTC will examine whether the distribution channels used on other types of devices such as PCs and video game consoles can be competitive pressure on the app distribution service market.

First, as mentioned in Chapter 2, smartphones have become daily necessities for consumers, and the usage rate and time of smartphones have continued to increase far beyond those of PCs. In addition to entertainment such as music, video, and games, various services in daily life are

being developed and provided as apps on smartphones. In this regard, from the ranking of app users shown in 2-(2), apps used as a means of communication and social media, apps used when using retail stores and restaurants, and apps used to obtain information such as maps and transportation information are not limited to be used at home or work. It can be seen that there are many apps matching the characteristics of smartphones that can send and receive information in various places.

In particular, for services using various functions on smartphones (location information, accelerometer, camera, etc.), it may be difficult to provide the same services on other types of devices. For example, maps and navigation apps on smartphones are used while constantly checking the latest location information when on the go, especially when moving. In the case, those apps are not suitable for use on PCs or tablets, which are not normally expected to be carried with people while connected to the Internet at all times.

In addition, enterprises that deploy game platforms for PCs and game platforms for smartphones said, "Each platform has a completely different lineup of games. There are many users who play smartphone games in their spare time. On the other hand, PC games are mostly played while sitting for a long time, and there is a demand for high resolution and being able to be played by a large number of people. There is a tendency to offer any games on mobile devices, but when we create a game that uses new specifications of a device, a PC is a must due to the need to process large amounts of information." From this perspective, consumers separately use an app used on smartphones and an app used on other types of devices depending on the content of apps such as games they want to use and the timing (time and place).

Furthermore, most of the users who have other types of devices such as PCs, tablets, and video game consoles also use smartphones, but smartphone users are not necessarily using other types of devices[148]. Therefore, a limited number of users have a choice to use apps on other types of devices.

In this context, app usage on tablets, PCs, and other devices is not a substitute for app usage on smartphones. That is, smartphones will not become unnecessary for app usage even if these devices are used, and tablets, PCs, and other devices are used in parallel with smartphones.

Therefore, it cannot be said that the app distribution on these other types of devices is effective competitive pressure on the app distribution through Google Play or App Store.

148 As mentioned in Chapter 2 above, the smartphone usage rate averages over 90% across generations. According to Figure 2-1, the tablet usage rate was 39.2%; according to Chapter 4, 4-1 of "FY2021 Survey Report on Usage Time of Information and Communications Media and Information Behavior" by Institute for Information and Communications Policy, MIC, the usage rate of PCs was 63.3%, that of portable game consoles was 25.7%, and that of home-use video game consoles was 28.6%.

3. Brief summary

As discussed above, Google Play and App Store have no competitive pressure on each other. Currently, competitive pressure from downloads from other app stores offered by the enterprises including new entrants other than Apple and Google is also limited, and the use of side-loading and web services (especially web apps) via the browser are not effective competitive pressure on Google Play and App Store. In addition, the app distribution on other types of devices, such as PCs and video game consoles, is not effective competitive pressure on Google Play and App Store.

Chapter 8. View from the AMA

[Summary of this Chapter]

- In the mobile OS market and the app distribution service market, there is not enough competitive pressure on the mobile OS and the app stores provided/operated by Google and Apple. To address competitive concerns regarding Google and Apple in both markets, it is effective to create a healthy competitive environment in both markets through measures in terms of competition policy such as increasing the scope for potential competitors to enter the market (see Chapter 9).
- In the app market and other smartphone-related markets, while a certain degree of competition is taking place, Google and Apple may conduct exclusionary self-preferencing by using their position in the mobile OS market and the app distribution service market, where sufficient competitive pressure does not exist. Additionally, when Google and Apple have a superior bargaining position in service transactions with the app developers, they may unjustly cause disadvantage to the app developers.
- From the standpoint of the Antimonopoly Act (AMA), the JFTC reviewed the following:

  (i) Exclusionary self-preferencing in the app market and other smartphone-related markets

  Google's and Apple's conduct such as the following would be a problem under the AMA when such conduct leads to interfere with transactions between the competitors and consumers, causing a decrease in trade opportunities for the competitors or the exclusion of the competitors.

  (i)-1 Exclusionary self-preferencing by using their position as the mobile OS providers
  (e.g. Restricting competitors' access to (part of) smartphone functions)

  (i)-2 Exclusionary self-preferencing by using their position as the app store operators
  (e.g. Disadvantaging the competitors' apps in app store rankings)

  (i)-3 Exclusionary self-preferencing regarding use of data
  (e.g. Widely and cross-sectionally collecting the data generated from other app developers' apps, and using the data for developing and providing their own apps.)

  (i)-4 Exclusionary self-preferencing by influencing a consumer's rational choice
  (e.g. Disabling uninstallation of pre-installed apps/complicating settings of changing default)

  (ii) Conduct causing unjust disadvantage to the contracted party

  Google and Apple are highly likely to have a superior bargaining position in service transactions with the app developers. It would be a problem under the AMA to unjustly cause disadvantage to the app developers in view of normal business practices, such as incurring significant costs by making mobile OS specification changes (updates) frequently and without giving sufficient preparation time.
- When high commission levels lead to a decrease in trade opportunities for the competitors or the exclusion of the competitors, or when unilateral setting of excessively high commission levels with having a superior bargaining position unjustly causes disadvantage to the app developers in view of normal business practices, then these conducts would be a problem under the AMA. Because there is not enough competitive pressure in the app distribution service market, the level of commissions cannot be expected to decline by market functions. It is important to take measures in terms of competition policy to increase competitive pressure (see Chapter 9).
- When judging whether any conduct violates the AMA, various factors must be comprehensively considered. In assessing security and privacy claims by Google and Apple, consideration will be given to the rationality of the objective and the appropriateness of the means (whether there are alternative means that are less restrictive, etc.). Especially from the viewpoint of appropriateness of means, there may be cases where a large amount of verification work and highly specialized knowledge are required.

(Regarding the mobile OS market and the app distribution service market)

As mentioned in Chapter 6 and 7, in the mobile OS market and the app distribution service market, there is not enough competitive pressure on the mobile OS and app stores provided/operated by Google and Apple.

Given these situations in mobile OS market and app distribution service market, it is effective to create a healthy competitive environment in both markets through the measures in terms of competition policy such as increasing the scope for potential competitors to enter the market. Therefore, the JFTC will examine the specific measures in Chapter 9[149].

(Regarding the app market and other smartphone-related markets)

In the app market and other smartphone-related markets, new apps and products by Google, Apple, and third parties are emerging, and a certain degree of competition is taking place.

On the other hand, there are areas where Google or Apple itself also provides apps, products and services (e.g. apps such as health care apps and maps, products and services such as smartwatches and voice assistants) and areas where not.

In the former areas where Google or Apple itself also provides apps, products, and services, Google and Apple compete with other developers in the app market and other smartphone-related markets while providing mobile OS and operating app stores (dual role), and have potential conflicts of interest with those other developers, so they may have incentives of self-preferencing. In this regard, if Google or Apple uses its position in mobile OS and app distribution service market, where sufficient competitive pressure does not exist, to treat its own apps more favorably than those of competitors (or disadvantage those of competitors), the exclusion of the competitors may occur.

In addition, including in the latter areas where Google or Apple itself does not provide apps, products, and services, Google and Apple may use a superior bargaining position in service transactions with the contracted parties and unjustly cause disadvantage to them.

In light of these circumstances, this report first reviews the following two types of conducts from the perspective of the AMA (see Chapter 9 as for proposals from the competition policy).

- Exclusionary self-preferencing in the app market and other smartphone-related markets (Chapter8-1)
- Conducts causing unjust disadvantage to the contracted party (Chapter 8-2)

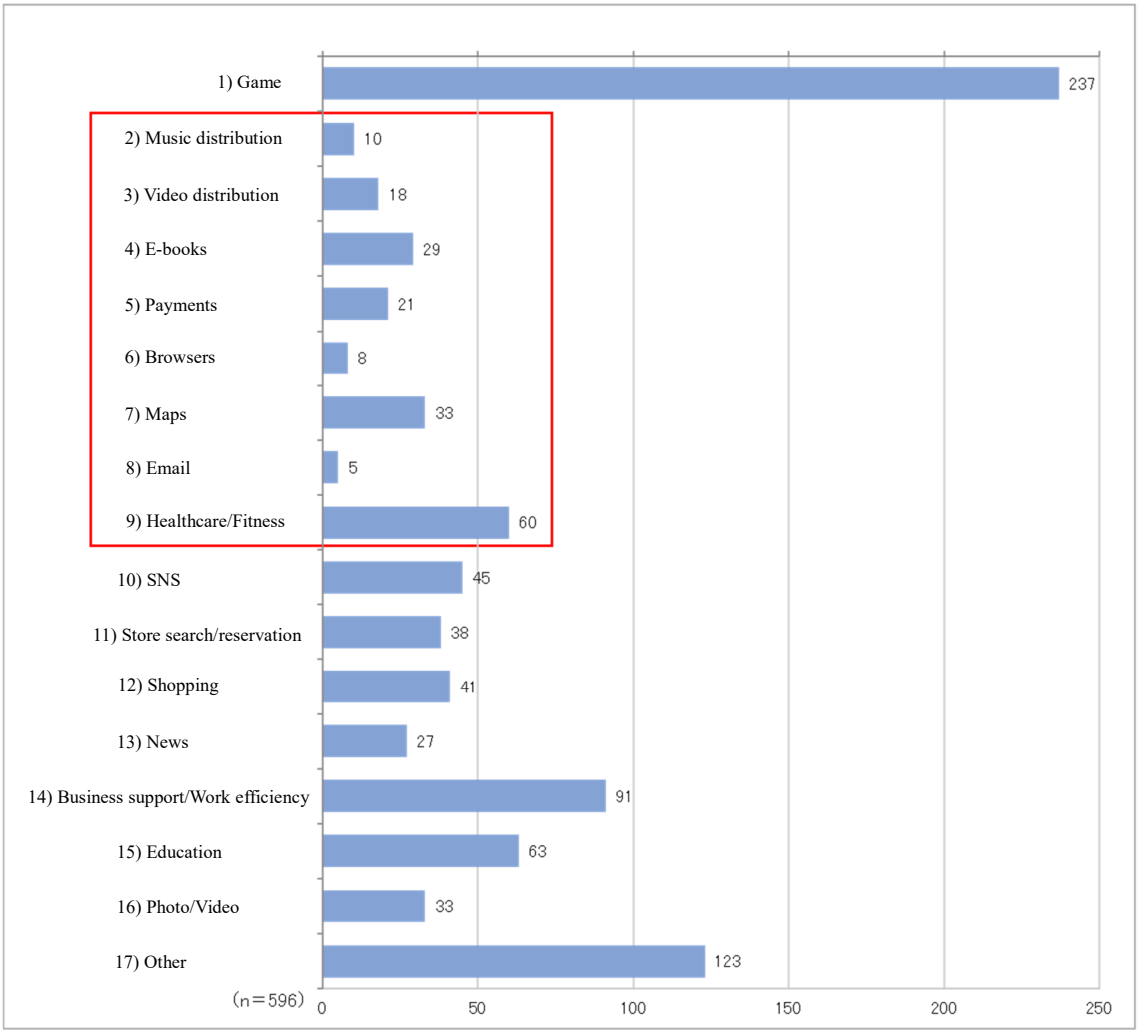
149 With respect to the views from the AMA regarding the conducts of app store operators in app distribution service market, the JFTC presented its view in “Report regarding trade practices on digital platforms (Business-to-Business transactions on online retail platform and app store)” published in 2019 (Hereinafter referred to as “the JFTC 2019 Report.”), such as the view that the app store provider’s restriction on app downloads outside of app stores would be a problem under the AMA (interference with a competitor's transactions, etc.) if the restriction unjustly interferes with a transaction between companies providing services which compete its own app stores and sellers or consumers.

1. Exclusionary self-preferencing in the app market and other smartphone-related markets

As mentioned in introductory clauses of this Chapter, Google and Apple have a dual role in providing apps, products, and services, and they may have incentives of self-preferencing. Google and Apple are in a position to be able to exclude their competitors in the app market and other smartphone-related markets through the following self-preferencing by using their position in the mobile OS market and the app distribution service market, where sufficient competitive pressure does not exist.

In this regard, the JFTC conducted the survey for app developers and confirmed the extent to which there are app developers providing apps that compete with Google's or Apple's apps. The survey result shows, as for the 8 major genres (i.e. music distribution, video distribution, e-books, payments, browsers, maps, email, and healthcare/fitness) where Google or Apple provides its own apps, 152 out of 596 developers (approximately 25%) provide apps in any of these genres. This indicates that a certain number of app developers are competing with Google or Apple (Figure 8-1).

Figure 8-1. Genres of apps provided by app developers (main genres provided by Google and Apple are indicated in red box) (multiple answers allowed)



(1) Exclusionary self-preferencing by using the position as the mobile OS providers (Restriction of access, etc.)

Google and Apple are in a position to be able to exclude their competitors by treating their own apps, products, and services more favorably than those of competitors. They might restrict competitors' access to smartphone functions by using their position in the mobile OS market, where sufficient competitive pressure does not exist.

A. Results of interviews with app developers

In interviews with app providers, the following opinions were obtained:

- Apple uses NFC and UWB on iOS devices to provide its own services, but restricts access to third parties, preventing them from developing new products.

- Due to the limitation of access to UWB on iOS devices, there are limitations in detection accuracy for third party search networks that cannot use UWB, compared to the search network provided by Apple itself that uses UWB for “smart tag” related search networks (see Chapter 3).
- While it is necessary to use the location information of the smartphone to make the search network work, the number of consumers (active users) who allow the third-party’s app to acquire location information has decreased due to excessive warnings on smartphones for acquiring and using the location information by the app. Regarding Apple’s search network, such warnings do not seem to appear, putting the third-party app is at a disadvantage.
- Google and Apple have an advantage in the development of apps and digital content due to the updates that are advantageous to them regarding the functions of mobile OS, browsers and others, or their earlier access to the updated information than other developers.
- App Tracking Transparency (ATT), which was a specification change that required user consent for data tracking, was introduced as a new feature in iOS update, and it had a major impact on the digital advertising business. On the other hand, Apple uses its rule-maker position to create an advantage for its own advertising business, and actually increases its profits in the advertising business.

Thus, concerns were raised about the use of the position as a mobile OS provider to conduct exclusionary self-preferencing with regard to accessing smartphone functions through the mobile OS and updating mobile OS and smartphone functions.

In addition, as shown in Figure 8-11, according to the survey for app developers, the reasons why app developers feel that the competitive conditions are more favorable for Google’s/Apple’s apps than their apps as follows:

- The percentage of app developers who responded “Google’s/Apple’s apps are easier/smoother to access mobile OS functions and more functional than other developers’ apps” was 53.3%
- The percentage of app developers who responded “Google’s/Apple’s apps can respond quickly to mobile OS updates” was 38.8%

This suggests a certain percentage of competitors feel there are differences in competitive conditions compared to Google or Apple because of these factors.

B. Results of consumer survey

As one of the representative products offered in the smartphone-related markets, the consumer survey on the usage of smartwatches was conducted, and the results are as follows.

First, as Figure 8-2 shows, consumers 8.0% of Android users and 17.2% of iOS users own a smartwatch and use it in conjunction with smartphones.

Next, an analysis of smartwatches owned or purchased by mobile OS is as follows. 68.0% of iOS users who own a smartwatch and use it in conjunction with smartphones have an Apple Watch, as shown in Figure 8-3. Also, 35.2% (93.1% excluding those who answered "I don't know") of iOS users who do not own a smartwatch would choose an Apple Watch if they were to purchase a smartwatch, as shown in Figure 8-4. As to the reasons for choosing an Apple Watch (multiple answers allowed), as shown in Figure 8-5, 77.2% of consumers said "because the combination of iPhone and Apple Watch is easier and smoother to set up," 42.6% of them said "because the combination of iPhone and Apple Watch is better for connecting and syncing data," and 19.5% of them said "because some functions on iPhone (e.g. answering calls, playing music, etc.) may be impossible or difficult to do without Apple Watch."

Therefore, it can be seen that when choosing a smartwatch, iOS users value smoothness and stability with iPhone.

Figure 8-2. Consumer usage of smart watches (single answer)

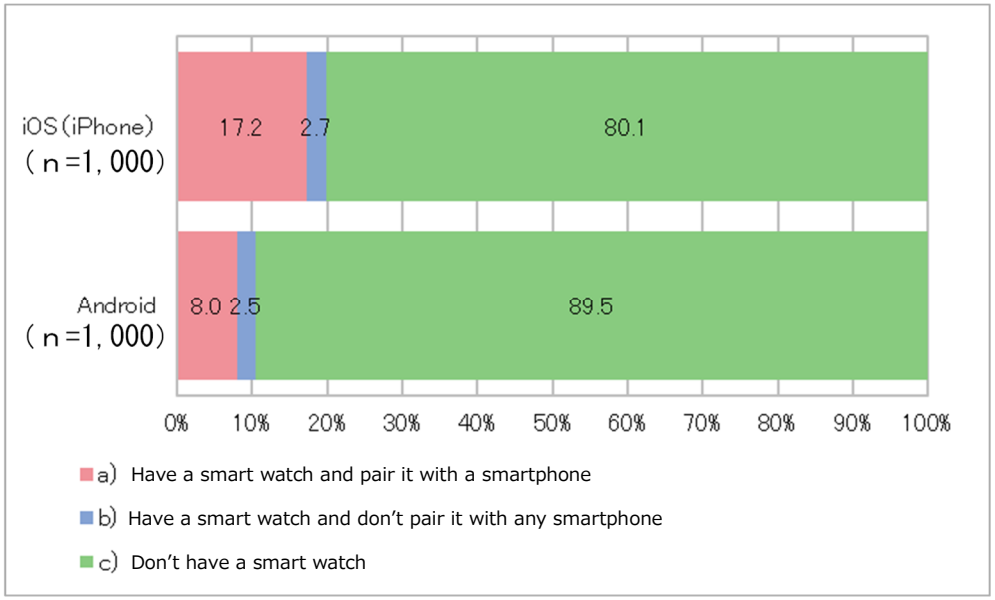


Figure 8-3. Type of smartwatch owned by consumers who have a smartwatch and use it in conjunction with smartphones (single answer)

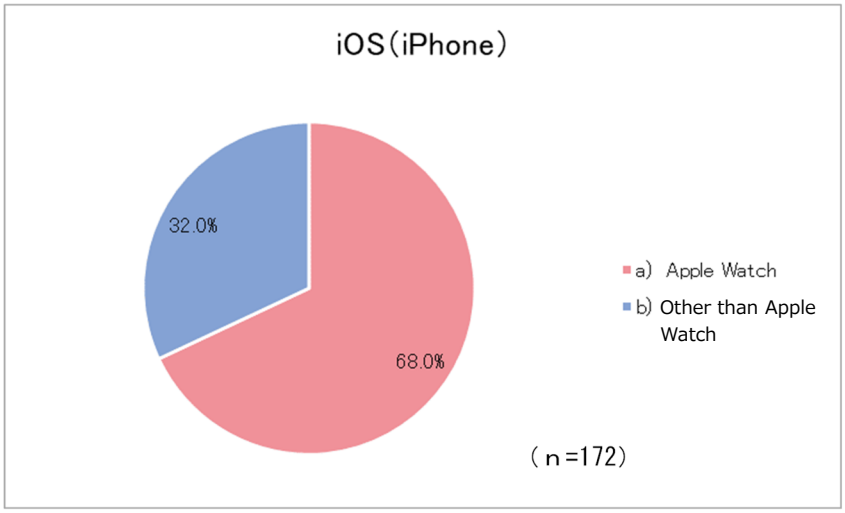


Figure 8-4. Choice of a smartwatch by consumers who do not own it (single answer)

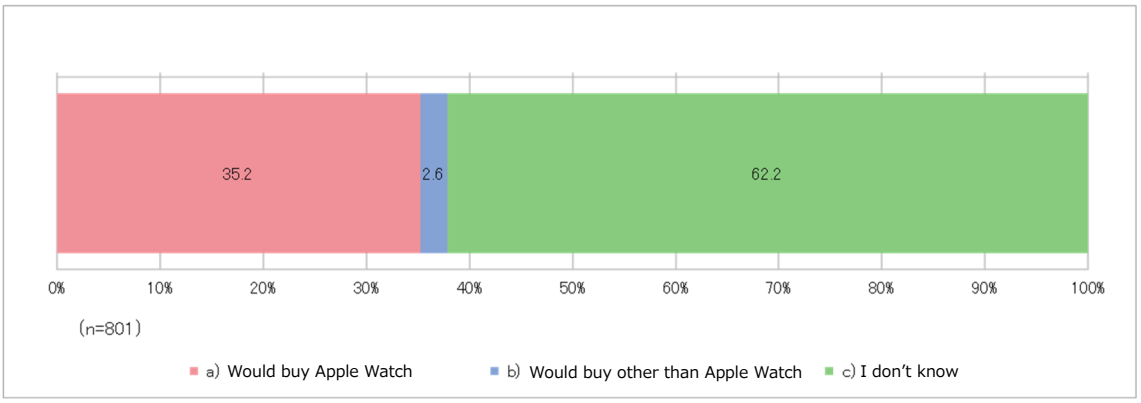
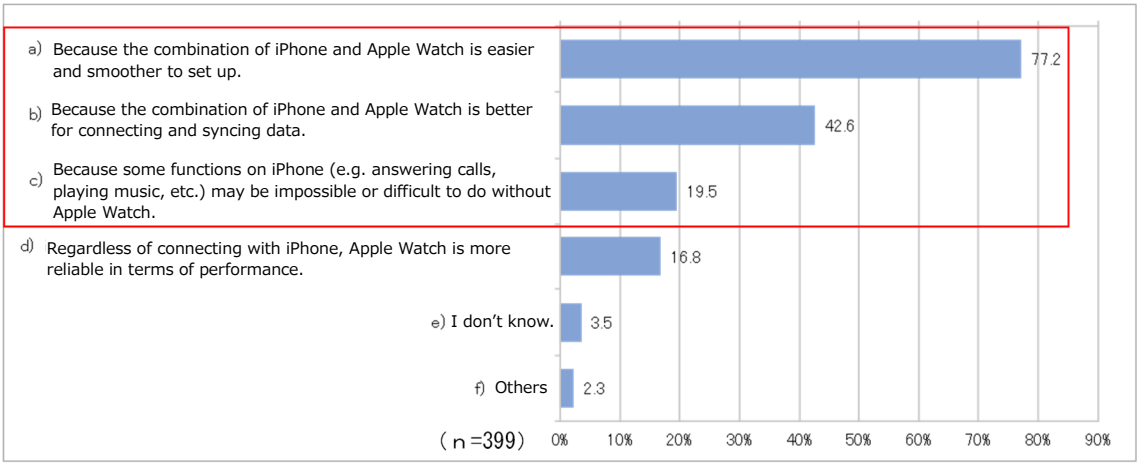


Figure 8-5. The reasons to have bought or intend to buy an Apple Watch (multiple answers allowed)



On the other hand, among Android users who own a smartwatch and use it in conjunction with a smartphone, 33.8% of users own Google's Wear OS smartwatch, as shown in Figure 8-6. Also, 9.4% (68.1% excluding those who answered "I don't know") of Android users who do not own a smartwatch would choose a Wear OS smartwatch if they were to purchase a smartwatch, as shown in Figure 8-7. As to the reasons for choosing a Wear OS smartwatch (multiple answers allowed), as shown in Figure 8-8, 64.9% of consumers said "because the combination of Android smartphone and Wear OS smartwatch is easier and smoother to set up," 36.9% of them said "because the combination of Android smartphone and Wear OS smartwatch is better for connecting and syncing data," and 14.4% of them said "because some functions on Android smartphone (e.g. answering calls, playing music, etc.) may be impossible or difficult to do without Wear OS smartwatch."

Therefore, while Android users are less likely than iOS users to own or to choose Google's Wear OS smartwatch, they value smoothness and stability when choosing a smartwatch like iOS users.

Figure 8-6. Type of smartwatch owned by consumers who have a smartwatch and use it in conjunction with smartphones (single answer)

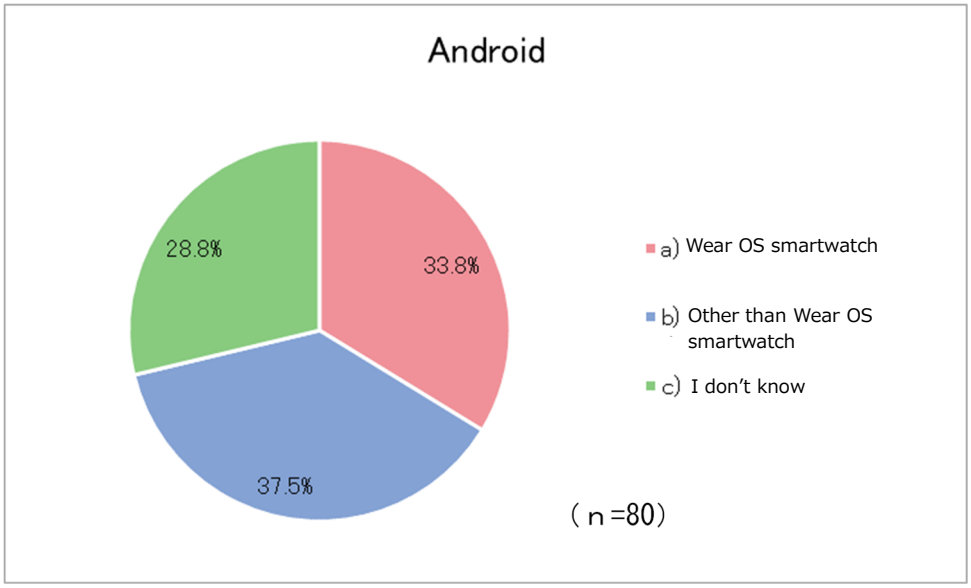


Figure 8-7. Choice of a smartwatch by consumers who do not own it (single answer)

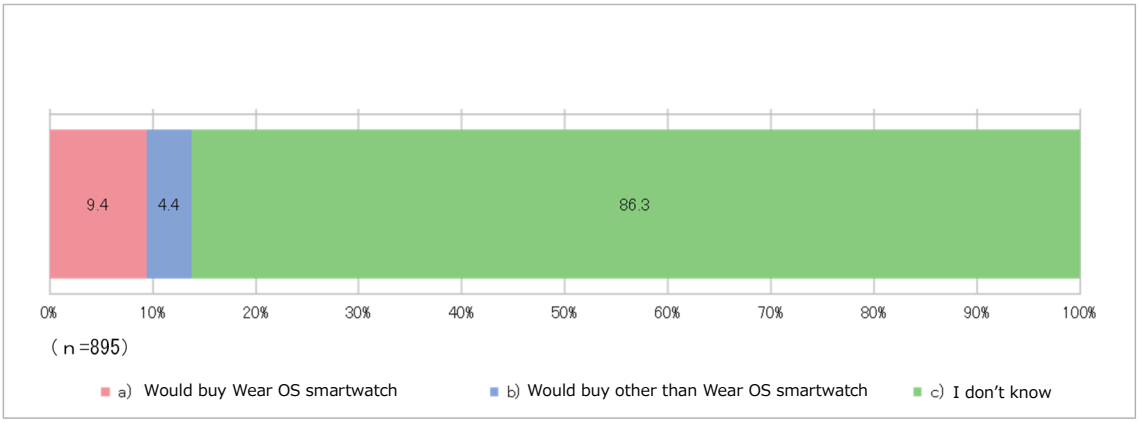
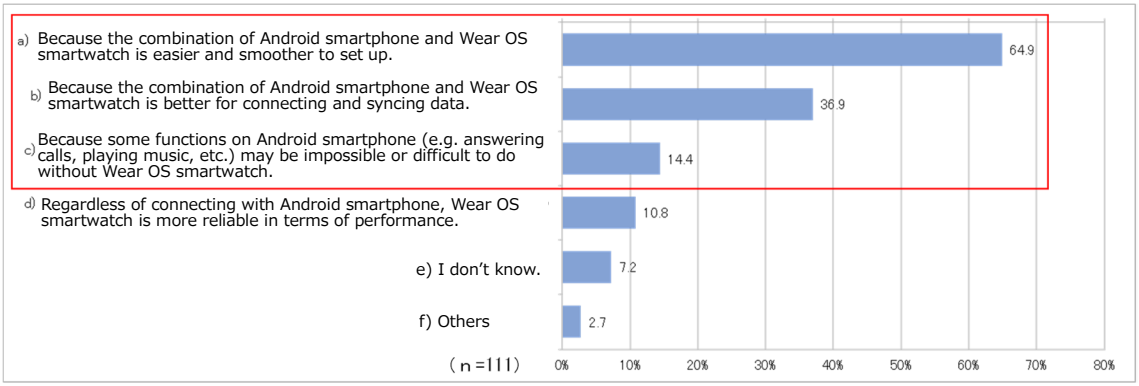


Figure 8-8. The reason to have bought or intend to buy a Wear OS smartwatch (multiple answers allowed)



Based on these results, there Google and Apple could have an incentive to make it easier to connect the apps and services on smartwatches with smartphones equipped with their mobile OS by using their position in the mobile OS market and the app distribution service market, where sufficient competitive pressure does not exist. If they conduct self-preferencing for access to smartphone functions via their own mobile OSs, consumers who participate in the mobile ecosystem centered on their own mobile OS would be locked-in and other competitors could be excluded in the smartphone-related markets.

C. Claims by Google and Apple

The following claims were made by Google and Apple.

<Google>

[Restricting competitors' access to (part of) smartphone functions]

- The open-source Android Operating System makes no distinction between Google hardware/software and third-party hardware/software. The Android OS doesn't have the

characteristics to favor our own devices and apps over those of competitors.

[Updates of their mobile OS]

- As a general rule, Android public APIs are available for both our own and other competitors' apps and services simultaneously.
- APIs under development may undergo in-house pre-launch testing for a period of time. This will help identify and address bugs and other errors that could harm both Google and other companies before those errors are released to the public.
- Google doesn't share information about Android updates with our apps for any purpose other than to benefit the Android ecosystem, including to unfairly favor our own apps.
- Google is committed to treating all app developers equally and fairly, and to providing notification and support for OS updates to both our company and other developers. In particular, Google provides advance notification of Android updates for other developers, giving them enough time to plan for testing and releasing their apps.
- Google regularly develops and tests new Android functions with our own developers to ensure those functions work as intended when they are released.

<Apple>

[Restricting competitors' access to (part of) smartphone functions]

- Developers also have access to a variety of APIs that provide access iPhone features like Bluetooth, GPS, motion sensors (e.g., accelerometer and gyroscope), and taptic engine.
- There are features that are not presently available to third party browsers. This may be due to time and resource constraints, technical barriers with making features widely available without compromising security, performance, or privacy, and/or a lack of evidenced third-party demand for such features.
- At the same time, Apple remains scrupulously careful when providing access to new features and technologies to ensure that the security and integrity of the user experience is not sacrificed, and that the hardware works well with developers' apps and proprietary technology. This takes time accomplish. For example, features like Face ID and Touch ID were only made available to third parties after Apple was sure that the user experience and user safety and security would not be compromised.

[Updates of their mobile OS]

- Apple's apps and third-party apps are made available to users at the same time a new iOS update is released. Third-party apps, like Apple's own apps, are given time to update their apps prior to the release of the new iOS update.
- Apple regularly works with developers to test new features and technology in iOS before they are released, and provides early access to hardware or software to limited groups of

developers in order to test features. This is needed to ensure they work as intended and are safe for developers and customers.

(In particular, the relationship with ATT)

- By providing users with more information and control around how their personal data is used, Apple's ATT feature is pro-consumer, pro-competitive and consistent with Apple's pro-privacy business model. It is also in line with strong consumer demand for more control over their data.
- Apple's business model is not dependent on advertising. The collection of user data is not integral to its business, and Apple does not rely on monetizing its users' data. To the contrary, Apple's privacy commitment constitutes an important differentiating factor for Apple in its vigorous competition with other device manufacturers.
- ATT equally applies to Apple's own services as to third-party apps. If Apple engaged in tracking, it would display the ATT prompt in the same manner as third-party developers. However, Apple does not engage in tracking.
- ATT does not affect developers' ability to use first-party data for personalized advertising or other purposes (just as Apple may use certain first-party data for advertising purposes). Also in this regard, there can be no question of "self-preferencing." To the contrary, Apple actually imposes much more stringent restrictions on its own use of first party data than most third parties impose on themselves.

D. Views from the AMA

Based on 1-⑴-A and B, Google and Apple may be able to exclude their competitors by treating their own apps, products, and services more favorably than those of their competitors through conducts such as:

(a) Restricting the access to (part of) smartphone functions (API connection, etc.) that can be accessed by their own apps, products, and services from other competitors in the app market and other smartphone-related markets

(b) Allowing their own app developers access to information about updates of their mobile OS and smartphone functions, making their own apps, products, and services compatible with updates of their mobile OS earlier than competitors

(c) Constraining the business models of competitors through updates of their mobile OS and related smartphone features

Regarding to these concerns, Google and Apple have argued, as stated in 1-⑴-C, that they are not giving self-preferencing treatment, such as unduly favoring their own apps with respect to updating or accessing information about the functions of the mobile OS or related smartphone functions. Also, they argue that restricting access to third parties is due to the

need to ensure security and protect privacy of the consumer.

With respect to these claims, even if there is no intention of self-preferencing, when the conduct causes a decrease in trade opportunities for the competitors or the exclusion of the competitors, the conduct would be a problem under the AMA. Also, as discussed in Chapter 8-4, just the fact that the conduct is intended to ensure security and protect privacy of consumers does not mean it would not a problem under the AMA.

Therefore, Google's and Apple's conduct such as (a), (b), or (c) above would be a problem under the AMA (Private monopolization, Interference with a competitor's transactions, etc.) when such conduct leads to treating their own apps, products, and services more favorably than those of competitors and interferes with transactions between the competitors and consumers, causing a decrease in trade opportunities for the competitors or the exclusion of the competitors.

(2) Exclusionary self-preferencing by using the position as the app store operators (Disadvantageous treatment in rankings, etc.)

Google and Apple are in a position to be able to exclude their competitors by treating their own apps more favorably than those of competitors regarding the app store rankings, the commissions, or the app reviews by using their position in the app distribution service market, where sufficient competitive pressure does not exist.

A. Results of survey for app developers

In the JFTC 2019 report, the JFTC noted that app developers were "more disadvantaged than app store operators" in relation to the search results on app stores and commissions paid by third-party app developers to app store operators. On the other hand, app store operators expressed their views that they do not favor results for their own companies in the search rankings or in the display of recommended apps, and that they do not charge their own apps any commissions but reinvest part of such revenues in the operation of their app stores.[150]

In addition, regarding the treatment of competitors' apps in the app review process, the JFTC 2019 Report pointed out that the apps that compete with app store operators' apps are treated unfairly by arbitrarily changing the terms and conditions related to the app review." On the other hand, regarding this point, app store operators have expressed the opinion that

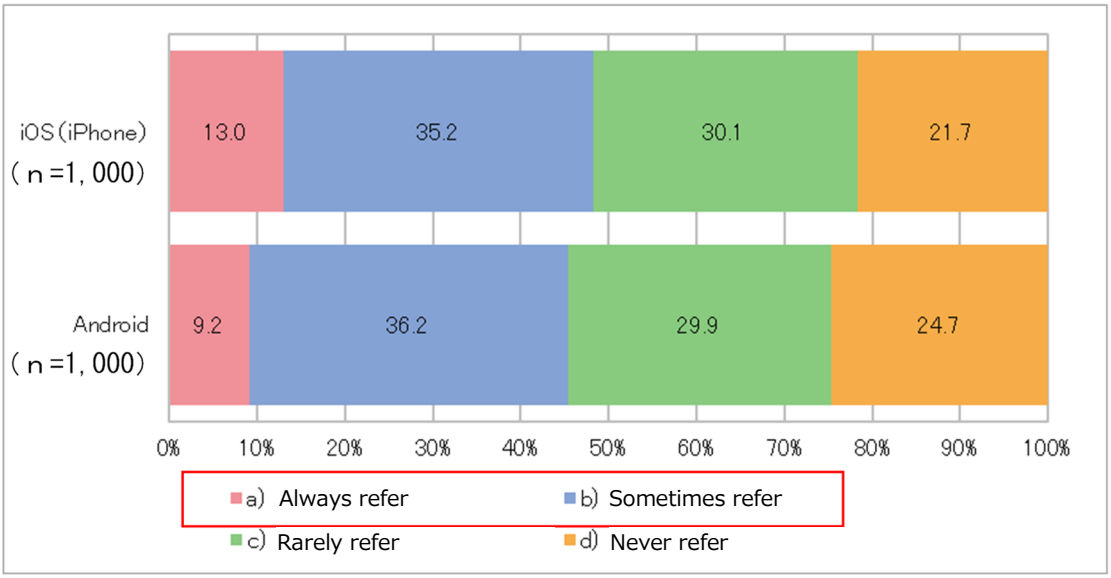
150 Chapter 2, Section 4, "2. Acts which could exclude competitors," (3), C of the JFTC 2019 Report
"...when digital platform operators unjustly interfere a transaction between sellers who compete the digital platform operators itself or their related companies on commission rate or display method regarding search results, managing arbitrarily search algorithm to give the goods which they or their related companies sell on the digital platform preferential treatment, they could violate the AMA (e.g. Interference with a Competitor's Transactions)."

they do not treat competing apps differently from any other apps.[151]

Regarding to these points, the results of the survey for consumers and app developers are as follows.

First, regarding the search results on app stores, 45.4% of Android users and 48.2% of iOS users responded in the consumer survey that they "always refer" or "sometimes refer" to app store rankings, recommendations, and ad space when downloading apps (Figure 8-9). Thus, nearly half of consumers refer to app store rankings, recommendations, and so on when downloading apps.

Figure 8-9. Frequency of referencing app store rankings, recommendations and ad space on app stores when downloading apps



Also, in the survey for app developers, the JFTC asked competing app developers about their recognition of the impact on the sales and the number of downloads by being ranked high or being featured as a recommendation on app stores. As a result, 51.3% of them answered that it had a "significant impact" and 18.1% of them answered that it had a "some impact," and the total of these responses is 69.4% (Figure 8-10).

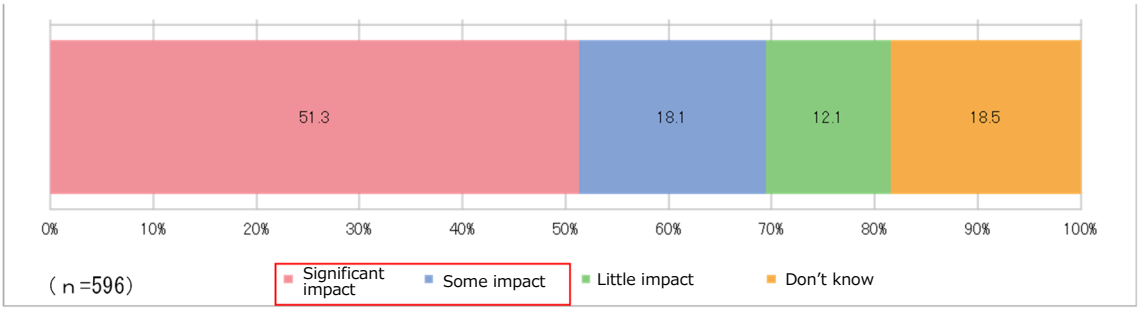
Responses to the specific impacts are as follows:

- The number of downloads increases more than a few times when the app ranks high in search results.

151 Chapter 2, Section 4, "2. Acts which could exclude competitors," (4), C of the JFTC 2019 Report
"...if they reject opening of stores or selling of products by sellers in order to achieve unjust purposes under the AMA, including eliminating sellers selling products that compete with those sold by the operators themselves or their related companies, the prices of the products among others, they could violate the AMA (e.g. Refusal to Trade)."

- Sales increased 10 to 100 times more than usual when featured as a recommendation, and returned to normal sales after being featured.
- When introduced as a recommended app, the number of impressions increased by about 1000 times and sales increased by 20 to 30 times.

Figure 8-10. Recognition of the impact on the sales and the number of downloads by being ranked high or being featured as a recommendation on app stores

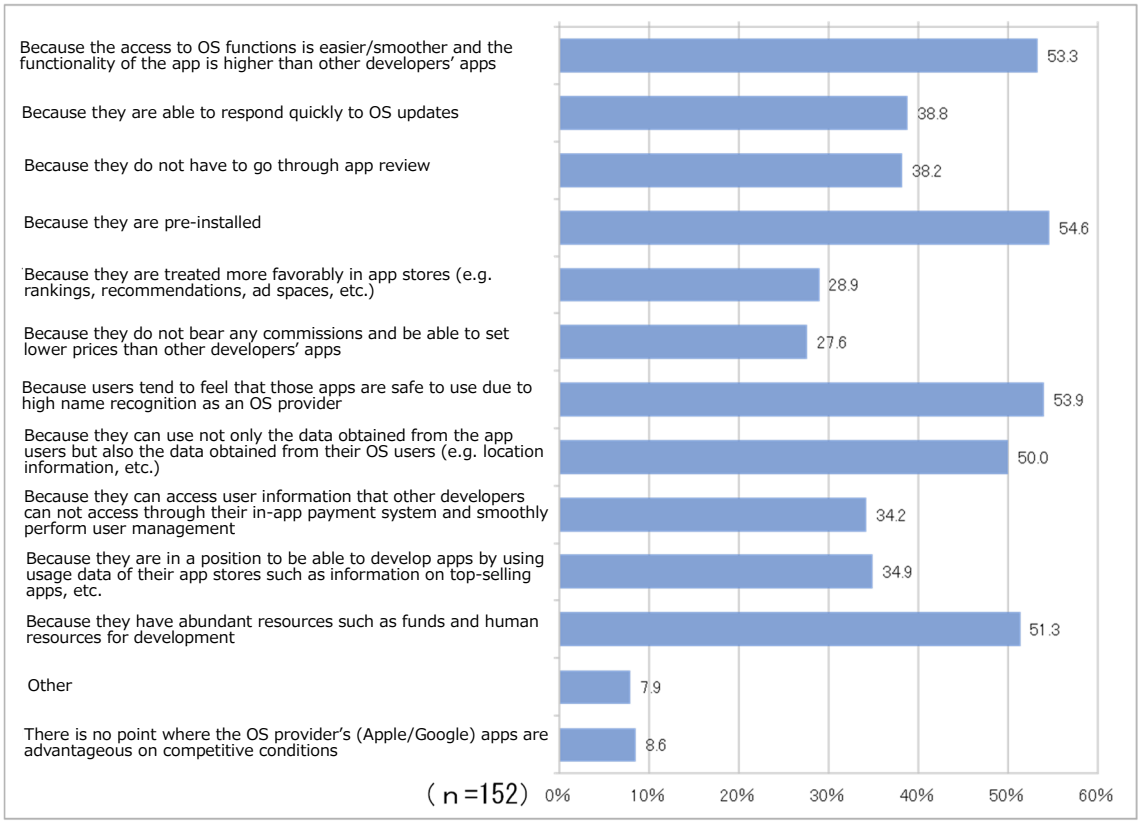


As for the reasons why other app developers feel that Google's/Apple's apps have better competitive conditions than other competing apps with regard to the search results, commissions, and app reviews by app store operators, many of app developers answered in the survey that "because users tend to feel that those apps are safe to use due to high name recognition as an OS provider," and "because they have abundant resources such as funds and human resources for development." In addition, a certain percentage of app developers think there are differences in competitive conditions between Google/Apple and them based on various reasons as below:

- 28.9% of app developers answered "because they are treated more favorably in app stores (e.g. rankings, recommendations, ad spaces, etc.)"
- 27.6% of them answered "because they do not bear any commissions and be able to set lower prices than other developers' apps"
- 38.2% of them answered "because they do not have to go through app review"

Figure 8-11. The reason why other app developers feel that Google's/Apple's apps have better competitive conditions than them in the same genres (*)

(*) Music distribution, Video distribution, E-books, Payments, Browsers, Maps, Email, Healthcare/Fitness



B. Claims by Google and Apple

The following claims were made by Google and Apple.

<Google>

[Search results in app stores, etc.]

- Google treats our own apps and other developers' apps equally and fairly. For example, Google applies the same rules and policies to every app and promotes apps in Google Play based on the same principles[152].
- Google will not systematically recommend our own apps over other developers' apps, as this may go against Google's efforts to increase the number and variety of apps in Google Play.

[App Store Commissions]

- There are situations where Google will not require using the Google Play billing system

152 Google "Availability of Features and Services"
https://support.google.com/googleplay/android-developer/answer/9959788?hl

(GPB). App developers can provide their apps without using GPB (i)when they deliver their apps and digital content for free[153], (ii)when digital content can be purchased outside of Google Play, such as on a developer's website, with the use of consumption-only (reader) apps[154], or (iii)when they sell physical goods or services. Also, app developers are not required to use GPB when providing their apps outside of Google Play.

- Other app developers selling apps or providing apps with in-app purchases on Google Play are required to use Google Play's payment system because it is seamless and secure.
- Regarding applicable service commissions, Google is trying to treat ourselves and other developers equally[155].
- In terms of the level of app store commissions, Google believes that imposing a fixed amount is not the best model for collecting service commissions, but rather reduces the value of the Android ecosystem to users and app developers.
- Based on the current system, about 97% of app developers who provide their apps on Google Play do not pay any commissions. For 99% of app developers who provide their apps on Google Play and qualify for service commissions, 15% or less commission rates are applied[156].

[App Review]

- Google’s apps go through the same app review process on Google Play as other app developers’ apps do. Google's app review process involves rigorous automated and manual reviews to identify and remove apps that may be harmful to users. Google reviews apps based on objective and clear criteria set out in our developer program policy and apply the same criteria to all apps.

<Apple>

[Search results in app stores, etc.]

- The App Store organic search algorithm applies to Apple’s own apps in the same way as it applies to third-party apps. It does not favor Apple own apps over third-party apps.

[App Store Commissions]

- IAP serves two core functions within the App Store. (i) IAP serves as the technical mechanism that ensures that Apple can collect its commission on eligible App Store sales

153 Including when monetizing apps through in-app advertising.
154 An app that digital content is not sold within the app, and is used for viewing digital content purchased by users on websites, etc.
155 Google “Understanding Google Play’s Payments policy” https://support.google.com/googleplay/android-developer/answer/10281818?hl#zippy=%2Cdo-googles-apps-have-to-follow-this-policy-too
156 Google “Evolving our business model to address developer needs” (October 21, 2021) https://android-developers.googleblog.com/2021/10/evolving-business-model.html

by developers. (ii) IAP provides iOS users with a single, secure, and easy-to-use payment method for all in-app purchases on which Apple's commission is payable, thereby ensuring the quality of user experience on which Apple's reputation rests[157], [158].

- When Apple launched the App Store over a decade ago, it decided that a commission model was the best business model to encourage developers to create apps for the App Store. It was a simple model — any developer that sold digital content on the Store would pay Apple. It was also a model used by many other software distributors at the time, many of which were charging more than 30% commission.
- Most developers have chosen not to use IAP at all (~85% of all apps do not use IAP).
- Applying the standard Apple commission to its own service would make little sense – that type of 'internal transaction' is an inevitable corollary of belonging to the same economic entity. This exemplifies the ability of a vertically-integrated firm to eliminate double marginalization[159]. This feature of vertically integrated firms is pro-competitive. As an example, the benefits were realized when Apple Music entered the music streaming business and forced competitors like Spotify and Google to respond with better consumer offers.

[App Review]

- The App Sore Review Guidelines apply equally to all developer apps — and this includes Apple's own apps that are on the App Store.

Google and Apple argue that they treat their own apps and other developers' apps equally. On the other hand, 28.9% of other app developers indicated in the survey that they perceive Google's/Apple's apps may be treated more favorably on Google Play or App Store (regarding rankings, recommendations, advertising slots, etc.). Thus, Google's/Apple's claims and other developers' perceptions do not agree. This can be attributed to the fact that it is difficult for third parties, including competing app developers, to verify whether Google and Apple manipulate the rankings and other information in their favor.

Regarding the issues related app stores, by the implementation of the Act on Improving Transparency and Fairness of Digital Platforms (hereinafter referred to as the "TFDPA".),

157 IAP also offers significant benefits to users of iOS devices. IAP allows an iOS user to buy digital content within the app on her Apple device using the payment credentials she has already registered with Apple and with the convenience of a few clicks. It also helps enable core App Store features like subscription management, Family Sharing and the "Ask to Buy" parental control feature.

158 The App Store model has worked well, revolutionizing software distribution by making it simple for developers, whether a single developer or large multi-national corporation, to create innovative apps and distribute those apps to millions of customers around the world for a nominal fee.

159 When competition is imperfect in multi-tiered markets in a vertical chain, prices are doubly above marginal costs because prices are set above marginal cost in each market. As a result, production volume (equal to sales volume and consumption volume) is doubly undersized relative to perfect competitive equilibrium, which is called double marginalization.

app store operators above a certain size (Google and Apple) are now required to develop systems for information disclosure and complaint processing, and disclosure of key matters that determine the search ranking is included in the information disclosure obligations[160]. In addition, based on the TFDPA, the Minister of METI is required to evaluate the transparency and fairness of specified digital platforms. As the first year, the 2022 evaluation[161] stated that "We will continue to closely monitor how to ensure transparency and fairness in the display ranking of products and applications, including addressing concerns regarding preferential treatment of our own and affiliated companies." The JFTC will continue to closely monitor Google's and Apple's compliance with the TFDPA, and respond strictly and appropriately to concrete cases that become problematic under the AMA.

C. Views from the AMA

Based on 1-(2)-A, Google and Apple may be able to exclude their competitors by treating their own apps more favorably than those of their competitors through conducts such as:

(a) Manipulating search algorithms or app store rankings in order to display their own apps in a way that appeals to consumers (or in a way that prevents a certain competing app developer's app from appearing in an appealing position to consumers)

(b) Disadvantaging the apps of competitors by collecting commissions from competitors while not collecting commissions from themselves

(c) Treating the apps of competitors disadvantageously in app review, such as by arbitrarily rejecting those apps

With regard to these concerns, Google and Apple have argued, as mentioned in 1-(2)-B, that they treat their own apps and other developers' apps equally in the ranking and in the app review. In addition, Apple has argued that the reason for not applying a commission to

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160 The TFDPA (tentative translation)
(Disclosure of Conditions, etc. of Provision of Specified Digital Platforms)
Article 5 (1) (omitted)
(2) When a Specified Digital Platform Provider provides a Specified Digital Platforms to the persons listed in the following items, it must disclose the items specified in the respective items as the Provision Conditions of the relevant Specified Digital Platform.
(i) User Providers of Goods, etc. (omitted) :The matters set forth below.
(a), (b) (omitted)
(c) In cases where information relating to Goods, etc. sought by General Users (limited to General Users who use the Specified Digital Platform; hereinafter the same shall apply in this article) through searches and other information relating to Goods, etc. is displayed with ranks indicated in a location provided by the relevant Specified Digital Platform, the main factors used to determine such ranks (in cases where payment of advertising and publicity expenses or other monies to the relevant Specified Digital Platform Provider by User Provider of Goods, etc. may have an influence on such rankings, including a statement to that effect);
(d) - (g) (omitted)
(ii) (omitted)
(3) – (5) (omitted)

161 Ministry of Economy, Trade and Industry (METI) "Evaluation on Transparency and Fairness of Specified Digital Platforms Compiled" (December 22, 2022)
https://www.meti.go.jp/english/press/2022/1222_003.html

itself is the existence of pro-competitive effect by eliminating double marginalization.

Regarding these claims, it is undeniable that there may be a decrease in trade opportunities for the competitors or the exclusion of the competitors as a result of these concerned conducts. Also, as discussed in Chapter 8-4, just the fact that the conduct is intended to ensure security and protect privacy of consumers does not mean it would not a problem under the AMA. In addition, in order to ascertain whether or not the pro-competitive effect by eliminating double marginalization as claimed above actually exists in each conduct and the extent of such effect, it is generally necessary to evaluate each conduct individually, including the use of economic analysis[162]. However, at present, there is no sufficient basis for these claims.

Therefore, Google's and Apple's conduct such as (a), (b), or (c) above would be a problem under the AMA (Private monopolization, Interference with a competitor's transactions, etc.) when such conduct leads to treating their own apps more favorably than those of competitors and interferes with transactions between the competitors and consumers, causing a decrease in trade opportunities for the competitors or the exclusion of the competitors.

In addition, the JFTC 2019 Report pointed out that conducts such as prohibiting off-app payments and unfairly forcing the use of in-app payments could be a problem under the AMA (Tie-in sales)[163].

Since the release of the JFTC 2019 Report, various movement related to this kind of in-app payments have occurred in several countries and regions, including Japan (see reference below). The link between the use of in-app payment system and the use of app store (It does not include the use of in-app payment system. The same shall apply hereafter.) has gradually loosened.

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162 Kittaka, Y., Sato, S., Zennyo, Y. 2022. "Self-Preferencing by Platforms: A Literature Review," CPRC Discussion Paper Series (https://www.jftc.go.jp/cprc/reports/disucussionpapers/r4/index_files/CPDP-89-2-E-R.pdf), which focuses on the impact of self-preferencing by platforms on competition in the market and sorts out competition policy issues by reviewing relevant existing economic research, cites previous research (Anderson and Bedre-Defolie (2021), Etro (2021)) and says sales by platforms themselves can improve or worsen consumer welfare. Also, the discussion paper says that the question of whether sales by platforms themselves are desirable for consumer welfare cannot be answered without prior information, and detailed analysis tailored to individual cases is important. Refer to Footnote 199 of Chapter 9.

163 Chapter 2, Section 4, "3. Acts which could restrict sellers' business," (3), B of the JFTC 2019 Report
"...If app store operators allow only in-app purchase as a means of payment by consumers and place restrictions on other payment outside of the apps, it could constitute a violation of the AMA. For example, music and video contents are distributed outside of apps, including through websites, and consumers may visit websites where businesses distribute such contents and pay for them, in such a case, even if the same contents are distributed on apps, consumers should be able to choose payment outside of the apps over in-app purchase. As well, developers are under certain restrictions concerning price setting due to the commission charged on in-app purchase, whereas payment outside of apps may create price-reduction effects because it is not subject to such restrictions. As a result, providing means of payment outside of apps will benefit consumers. Accordingly when app store operators unreasonably force sellers to use an electronic payment through an app and prohibits a payment outside of an app, restrict a price of a payment outside of an app, or prevent sellers unreasonably from providing information on the payment outside of an app, the store operators could violation the AMA (Trading on Restrictive Terms)."

(Reference) Recent trends in countries and regions regarding in-app payments

(i) South Korea (Google and Apple)

In August 2021, South Korea passed amendments to the Telecommunications Business Law that banned app store operators from forcing app developers to use certain payment methods.

The law allows developers to add an alternative in-app payment system in addition to the Google Play billing system for South Korean mobile phone and tablet users. Service commissions paid by developers will be reduced by 4% if users choose to use an alternative billing system[164].

Apple also announced that it would allow users to use an alternative in-app payment system in South Korea in addition to the Apple's system, and that it would reduce fees by 4% if users used an alternative payment system[165].

(ii) Japan[166] (Apple)

In September 2021, Apple made an offer to the JFTC to revise its guidelines by allowing app developers to include an in-app link[167] to set up and manage accounts within reader apps[168] of music streaming, e-books, video streaming, digital magazines and newspaper.

On March 31, 2022 (JST), Apple acted to allow such in-app link to set up and manage accounts within reader apps, and made it public.

(iii) Netherlands (Apple)

The Netherlands Authority for Consumers and Markets (ACM) ordered Apple in December 2021 to allow dating apps to use billing systems other than Apple's in-app payment system[169].

In response, Netherlands app developers providing dating apps became able to use

164 Google's official blog page for app developers (November 4, 2021)
https://developers-kr.googleblog.com/2021/11/enabling-alternative-billing-in-korea-en.html

165 Apple "Update on apps distributed in South Korea" (June 30, 2022)
https://developer.apple.com/news/?id=q0feipe4
Apple "Distributing apps using a third-party payment provider in South Korea"
https://developer.apple.com/support/storekit-external-entitlement-kr

166 Japan Fair Trade Commission "Closing the Investigation on the Suspected Violation of the Antimonopoly Act by Apple Inc." (September 2, 2021)
https://www.jftc.go.jp/en/pressreleases/yearly-2021/September/210902.html

167 An app that does not sell digital content within the app, but is used for viewing digital content purchased by users on websites, etc.

168 This refers to the act of including buttons or external links in an app that will direct users to a purchase with a billing method other than the one specified by Apple.

169 ACM "ACM obliges Apple to adjust unreasonable conditions for its App Store" (December 24, 2021)
https://www.acm.nl/en/publications/acm-obliges-apple-adjust-unreasonable-conditions-its-app-store
Apple filed a challenge to the ACM order and the case is pending.

alternative in-app payment systems other than Apple's and an in-app link within apps. Apple will charge app developers a 3% reduction in commissions in both cases[170].

(iv) Europe (Google)

In response to European Digital Markets Act (DMA)[171], Google has announced a new program that will allow non-game app developers to offer alternative billing systems other than Google Play billing system for users in the European Economic Area (EEA). Service commissions paid by developers will be reduced by 3% if users use an alternative billing system[172].

(v) Japan, etc. (Google)

In addition to D above, Google announced a pilot program that will allow participating app developers to offer an alternative in-app payment system in addition to the Google Play billing system. App developers participating in the pilot program will be able to offer an alternative in-app payment system to users of non-game apps in Japan, the EEA, Australia, India, Indonesia, Brazil, South Africa and the US. If a user uses an alternative payment system, the service commission paid by the developer will be reduced by 4%[173].

⑶ Exclusionary self-preferencing by using their position as the mobile OS providers or the app store operators (Use of data, etc.)

Google and Apple are in a position to be able to exclude their competitors by treating their own apps, products, and services more favorably than those of competitors regarding the use of data related to apps, products, and services that they may collect by using their position in the mobile OS market and the app distribution service market, where sufficient competitive pressure does not exist.

A. Results of survey for app developers

170 Apple's official support page for app developers
https://developer.apple.com/support/storekit-external-entitlement/

171 The act was proposed by the European Commission on December 15, 2020, together with the Digital Services Act, as a new set of comprehensive rules covering social networks, online marketplaces and digital services, to address the adverse consequences arising from certain actions by platforms (refers to a platform that has a significant impact on a member state's domestic market, serves as an important gateway for business users to access customers, and enjoys or is enjoying a solid position.) acting as digital "gatekeepers" to the European single market. It was adopted by the Council of the European Commission on July 18, 2022, and entered into force on November 1 of the same year. The act will be applied from May 2, 2023.

172 Google "An update on Google Play billing in the EEA" (July 19, 2022)
https://blog.google/around-the-globe/google-europe/an-update-on-google-play-billing-in-the-eea/

173 Google "Enrolling in the user choice billing pilot"
https://support.google.com/googleplay/android-developer/answer/12570971?hl=en

According to the survey for app developers, as shown in Figure 8-11, the reasons why other app developers feel that Google's/Apple's apps have better competitive conditions than other competing apps:

- 50.0% of app developers answered "because they can use not only the data obtained from the app users but also the data obtained from their OS users (e.g. location information, etc.)"
- 34.2% of app developers answered "because they can access user information that other developers cannot access through their in-app payment system and smoothly perform user management"
- 34.9% of app developers answered "because they are in a position to be able to develop apps by using usage data of their app stores such as information on top-selling apps, etc."

This suggests that a certain percentage of app developers feel that there are differences in competitive conditions between Google/Apple and them regarding the use of data, etc.

Furthermore, as shown in Figure 8-12, 22.1% of app developers responded that they have had specific experience or have not had specific experience but have thought that Google and Apple acquire and use data generated by using app developers' apps on the smartphone for Google's/Apple's own app development. The breakdown of data that app developers thought Google and Apple had acquired and used data of app developers was, in descending order, information about frequency of app usage, location information, purchase/payment history and refund information, as shown in Figure 8-13.

As shown in Figure 8-14, 45.5% of the app developers who have thought that Google and Apple acquire and use data of the app developers expressed that some of the data could not be acquired or used by their own.

Therefore, a certain number of app developers think that Google and Apple use data related to their apps (frequency of app usage by consumer, location information, payment history, etc.), and believe that nearly half of them do not obtain or use such data.

Figure 8-12. The experience of facing a situation where (app developers think that) Google and Apple acquire and use data generated by using app developers' apps on the smartphone for Google's/Apple's own app development (single answer)

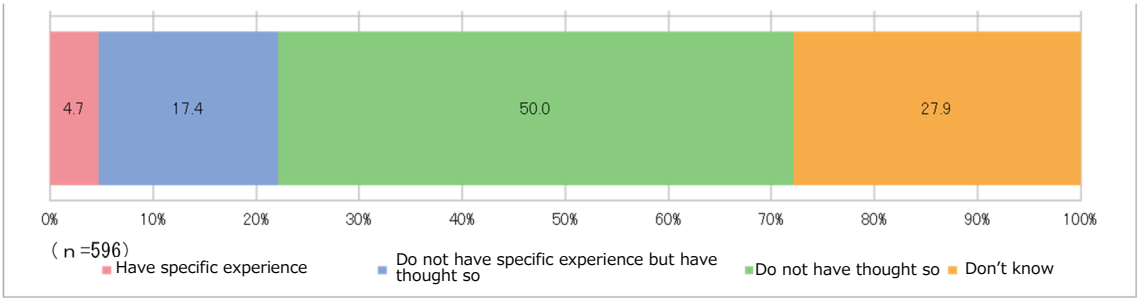


Figure 8-13. Data that app developers think that Google and Apple are acquiring and using for their own app development (multiple answers allowed)

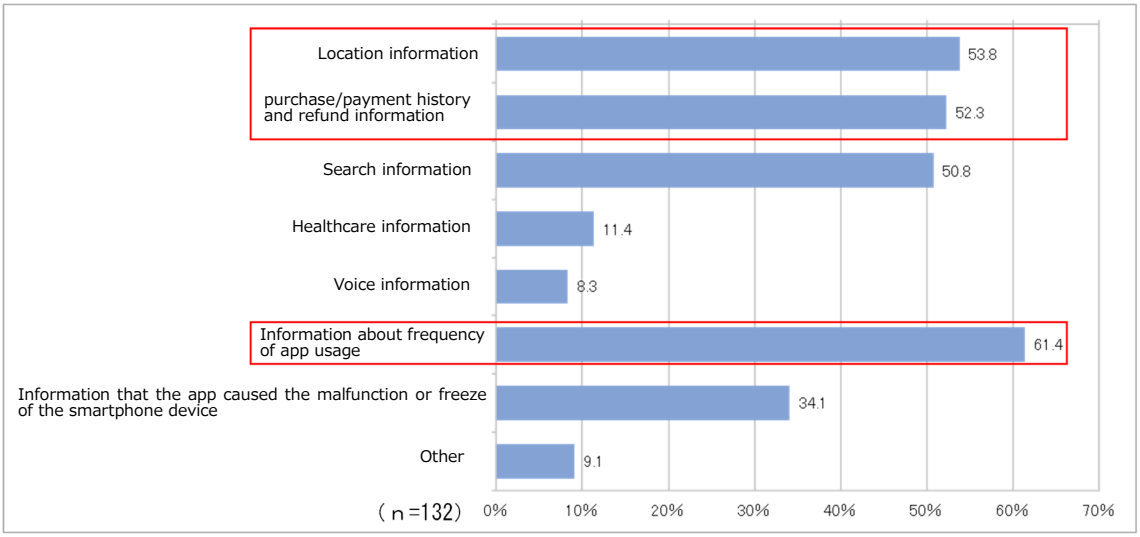
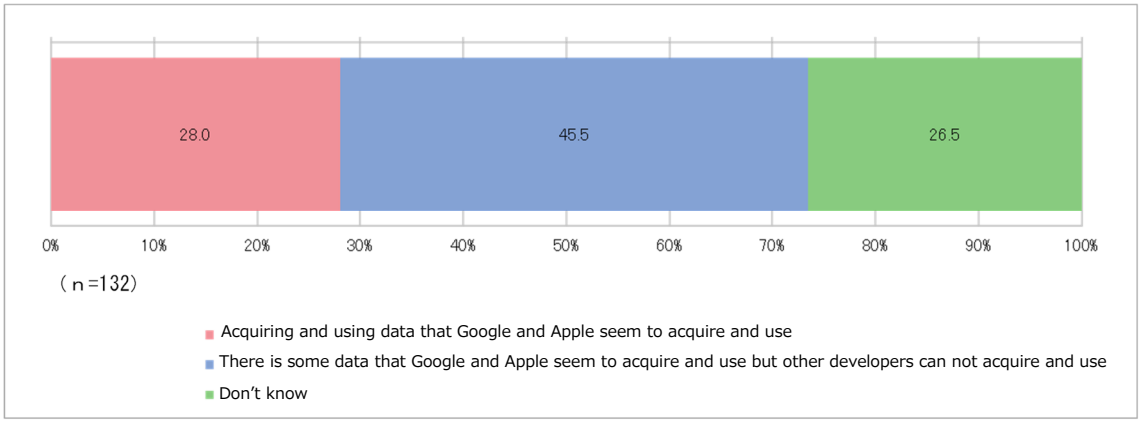


Figure 8-14. Status of acquisition and use of data that Google and Apple seem to acquire and use for their own app development (single answer)



In addition, the JFTC asked app developers who expressed that there is some data they believe Google and Apple acquire and use but other developers can not about their disadvantages arising from this. There were the following opinions:

- Google and Apple can see trend in competitors from as platform providers
- Google and Apple are likely to be able to develop apps later that are easy to monetize based on the payment history of the apps

Furthermore, in the interviews, while stating that from the standpoint of app developers, there is no way to confirm what data Google and Apple are actually acquiring and using, there were the following opinions:

(i) It is possible for Google and Apple to acquire data such as popular digital content and use it for other services by using their position as the app store operators.

(ii) It is technically possible for Google and Apple to get data generated from other companies' apps by accessing the hardware chips on their smartphones.

B. Claims by Google and Apple

The following claims were made by Google and Apple.

<Google>

- Google Play may collect certain data to improve its service and maintain high quality. Similarly, Google may collect Android usage and diagnostic data, depending on the user's settings, primarily to improve Android functions and the Android ecosystem. The use of such data is pro-competitive and leads to efficiency and innovation, which benefits consumers and enterprises.
- Google Play and Android have formalized policies that prohibit the use of non-public data generated from the use of the platforms by other companies in order to engage in unfair

competition with those companies. However, it may be used to help Google Play and the overall Android ecosystem such as developing anti-fraud functions.

- Google Play's policies prohibit non-public data related to developers from being shared to give Google's own developers an unfair advantage or used for any purpose other than serving the Google Play ecosystem[174].

<Apple>

- As the operator of the App Store, Apple, like any other store operator, has access to information generated from the use of the store by both end customers and product suppliers. However, unlike most other companies, Apple goes to great lengths to limit the data it collects from users by employing practices such as data minimization[175] and on-device processing[176].
- Apple does not use App Store data to inform decisions on what apps and services to create. App Store data is of limited value, particularly given that iOS (and the App Store) account for less than 15% of mobile operating systems worldwide. More importantly, information about popular apps is widely available through public sources.
- App Store data (including user engagement, financial performance or billings data) is not shared with Apple's services business to drive decisions about app development.
- Apple's data analytics team centrally controls access to App Store data and has established processes that prevent its dissemination without obtaining requisite approvals first. Any requests to use App Store data to help develop Apple's own apps would be denied under Apple's policies. The analytics team audits all existing data access approvals regularly to ensure they are appropriately granted.

In this regard, as mentioned in 1-(2), when acquiring and using the data related to the sales trends, etc., the disclosure of the content of the data and the conditions for the acquisition and use of such data is obligated under the TFDPA[177]. In the 2022 evaluation,

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174 Google "How to sustain a safe, thriving app and game ecosystem" (December 10, 2021)
https://blog.google/outreach-initiatives/public-policy/how-sustain-safe-thriving-app-and-game-ecosystem/

175 Refers to collecting only the minimum amount of data required to deliver what users need for a given service.

176 Refers to processing data on the device wherever possible, rather than sending it to Apple services, to protect user privacy and minimize data collection.

177 The TFDPA (tentative translation)
(Disclosure of Conditions, etc. of Provision of Specified Digital Platforms)
Article 5 (1) (omitted)
(2) When a Specified Digital Platform Provider provides a Specified Digital Platforms to the persons listed in the following items, it must disclose the items specified in the respective items as the Provision Conditions of the relevant Specified Digital Platform.
(i) User Providers of Goods, etc. (omitted) :The matters set forth below.
(a)-(c) (omitted)
(d) In cases where the relevant Specified Digital Platform Provider acquires or uses provided data on Goods, etc.

disclosure of conditions was described as “If the terms of use, etc., which describe the terms and conditions of provision, are voluminous, efforts and innovations are required to disclose them in an easy-to-understand manner so that important information for business users will not be buried in the terms and conditions.” The JFTC will continue to closely monitor Google's and Apple's compliance with the TFDPA, and respond strictly and appropriately to concrete cases that become problematic under the AMA.

C. Views from the AMA

Based on 1-(3)-A, Google and Apple may be able to exclude their competitors by creating a situation that is more advantageous than competitors when developing and providing their own apps, products, and services due to widely and cross-sectionally collection and use of the data through conducts such as:

(a) Widely and cross-sectionally collecting the data generated from apps, products, and services provided by other app developers, and using the data for developing and providing their own apps, products, and services

(b) Through app review, collecting information related to new functions of apps provided by other app developers before the app is newly released, and using it for developing their own apps, products, and services

Regarding to these concerns, Google has argued, as described in 1-(3)-B above, that it may use non-public data generated from the use of its platform by third parties to contribute to the overall its ecosystem, such as the development of anti-fraud functions, but that its internal regulations prohibit its use for unfair competition with other competing enterprises. Also, Apple has argued that it processes data on consumer devices as much as possible when collecting data, and that it limits the data sent to the company to the minimum extent. In addition, Apple has claimed that it manages the collected data in an independent division within the company, and that procedures which regularly be audited must be followed when the data is used by another division.

In this regard, if security and privacy are appropriately ensured, the collection and use of data from own apps, products, and services itself can lead to innovation, and basically pro-competitive. However, it is undeniable that there may be a decrease in trade opportunities for the competitors or the exclusion of the competitors depending on the scope and degree of data collection and use. Also, as discussed in Chapter 8-4, just the fact that the conduct is

---

(data pertaining to changes in sale prices for Goods, etc. provided by a User Provider of Goods, etc. and other data pertaining to Goods, etc. provided by the relevant User Provider of Goods, etc. (omitted)), the particulars of the provided data on Goods, etc. and the conditions relating to its acquisition or use;

(e)～(g) (omitted)

(ii) (omitted)

(3) – (5) (omitted)

intended to ensure security and protect privacy of consumers does not mean it would not a problem under the AMA.

Therefore, Google's and Apple's conduct such as (a), or (b) above would be a problem under the AMA (Private monopolization, Interference with a competitor's transactions, etc.) when such conduct leads to treating their own apps, products, and services more favorably than those of competitors and interferes with transactions between the competitors and consumers, causing a decrease in trade opportunities for the competitors or the exclusion of the competitors.

⑷ Exclusionary self-preferencing by using their position as the mobile OS providers or the app store operators (Self-preferencing by influencing a consumer's rational choice)

Google and Apple are in a position to be able to exclude their competitors by creating an advantage in consumer choice for their own apps or services compared to those of competitors through their actions related to initial settings of smartphones[178] by using their position in the mobile OS market and the app distribution service market, where sufficient competitive pressure does not exist.

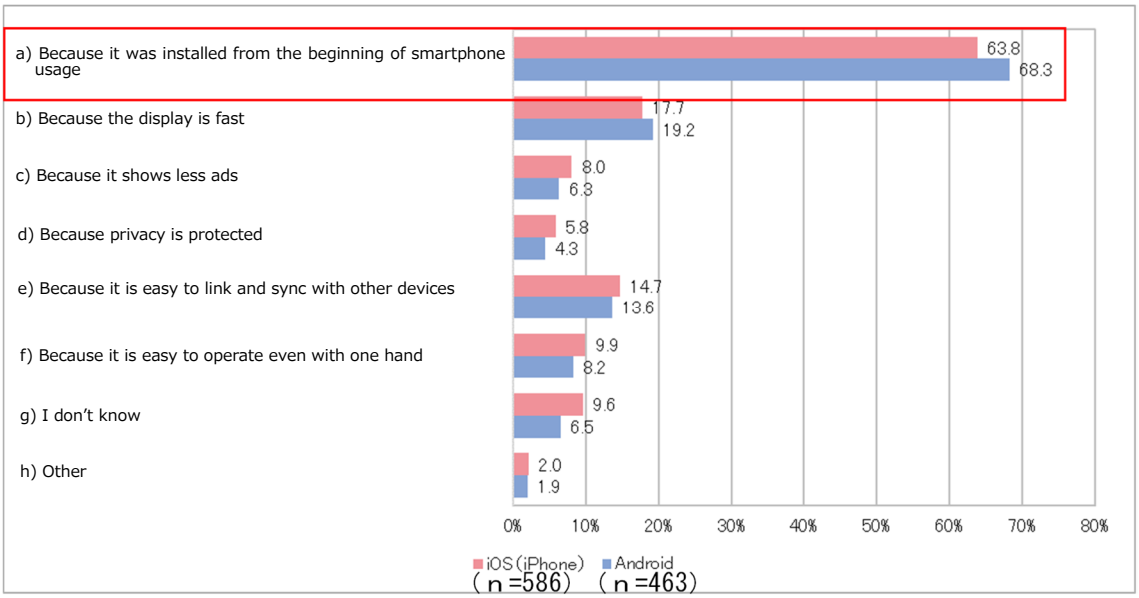
A. Results of consumer survey

(A) Effects of pre-installation

To assess the impact of pre-installation on consumers' app choices, the JFTC used a questionnaire survey for consumers to examine the usage of browser apps, which are usually pre-installed on smartphones. As shown in Figure 8-15, 68.3% of Android users and 63.8% of iOS users responded that the reason for using the most commonly used browser was "because it was installed from the beginning of smartphone usage."

178 As a premise, smartphone manufacturers decide (or decide through consultation with telecommunications carriers) which apps are pre-installed and which apps and services are set as default.
There are cases where pre-installation or default settings are made as the initial settings for smartphones provided by Google/Apple. As for Google, there are cases where Google makes arrangements regarding pre-installation or default settings (For example, the conclusion of MADA, RSA or MIA as described in Chapter 4.) with other smartphone manufacturers.
In addition, it should be noted that, according to the DOJ (the Department of Justice), Google have made substantial payments to Apple through an agreement with Apple to make Google the default search engine in Safari.
USDOJ "Justice Department Sues Monopolist Google For Violating Antitrust Laws" (October 20, 2020)
https://www.justice.gov/opa/pr/justice-department-sues-monopolist-google-violating-antitrust-laws

Figure 8-15. The browser consumers use the most and its reason



In this regard, when analyzing the "most used browser" by Android and iOS users in a consumer survey, Google's Chrome received the most responses from Android users, as shown in Figure 8-16, with a rate of 66.6%. Moreover, among consumers who answered Chrome to this question, a very high percentage (80.0%) chose Chrome because it was installed from the beginning of smartphone usage, as shown in Figure 8-17.

Figure 8-16. The most used browser (Android user)

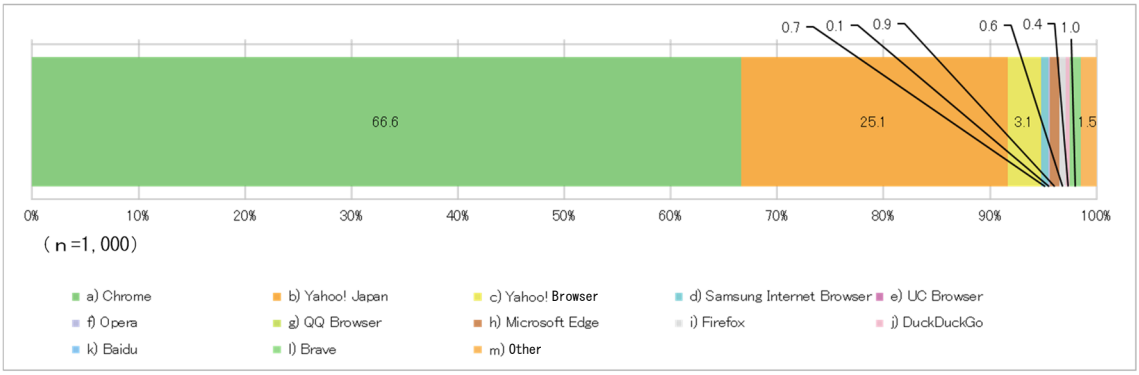
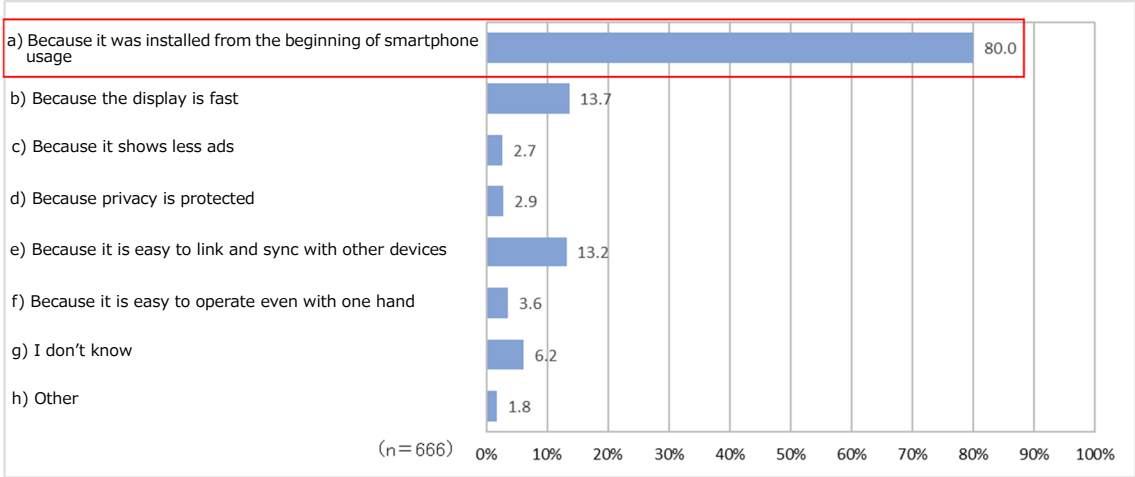


Figure 8-17. The reason to have chosen Chrome（Android user）



Similarly, the most used browser by iOS users was Apple's Safari (66.3%), as shown in Figure 8-18. Also, a very high percentage (83.0%) of consumers who chose Safari answered that "because it was installed from the beginning of smartphone usage," as shown in Figure 8-19.

Figure 8-18. The most used browser (iOS user)

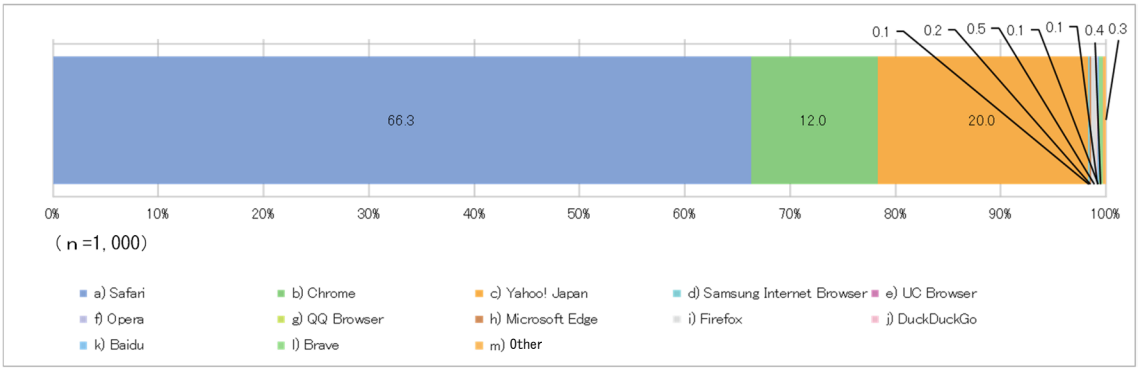
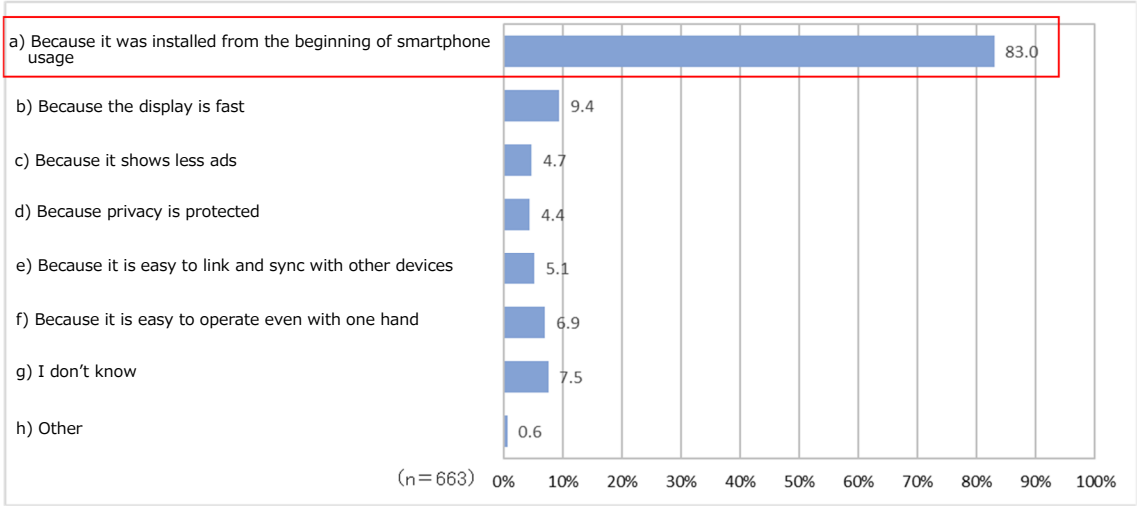
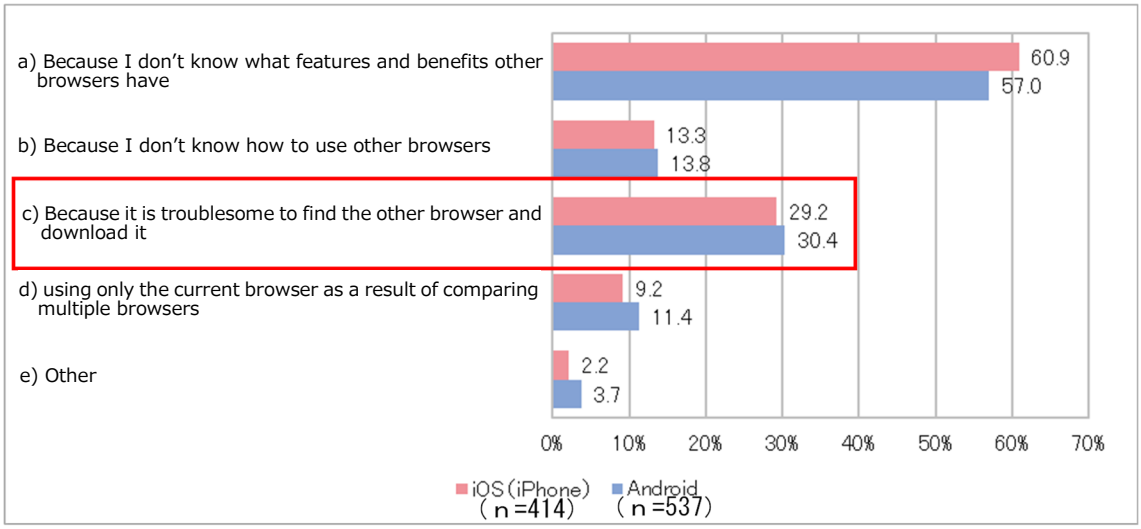


Figure 8-19. The reason to have chosen Chrome (iOS User)



The JFTC also surveyed consumers who use only one browser when browsing websites on their smartphones regarding the reason. The results showed that, as shown in Figure 8-20, "I don't know what features or advantages different browsers have" was the first most common reason and "it is troublesome to find the other browser and download it" was cited by 30.4% of Android consumers and 29.2% of iOS consumers.

Figure 8-20. Reasons not to use a browser other than current browser



All this suggests that having an app pre-installed on their smartphone is an important factor in consumers' choice of apps to use.

(B) Effects of default setting

In order to assess the impact of default settings on consumers' choice of apps and services, the JFTC used a questionnaire survey for consumers to examine the percentage of users who had changed the default search engine (e.g., Google, Bing, Yahoo, etc.) in the browser. As Figure 8-21 shows, only 26.2% of iOS users and 19.2% of Android users had changed the search engine. The JFTC also surveyed consumers who said they had never changed the default search engine in the browser regarding the reason. As shown in Figure 8-22, 48.4% of Android users and 47.3% of iOS users cited “It is troublesome to change to another search engine.” as the most common reason.

Figure 8-21. Whether the default search engine (e.g. Google, Bing, Yahoo, etc.) within the browser has been changed (single answer)

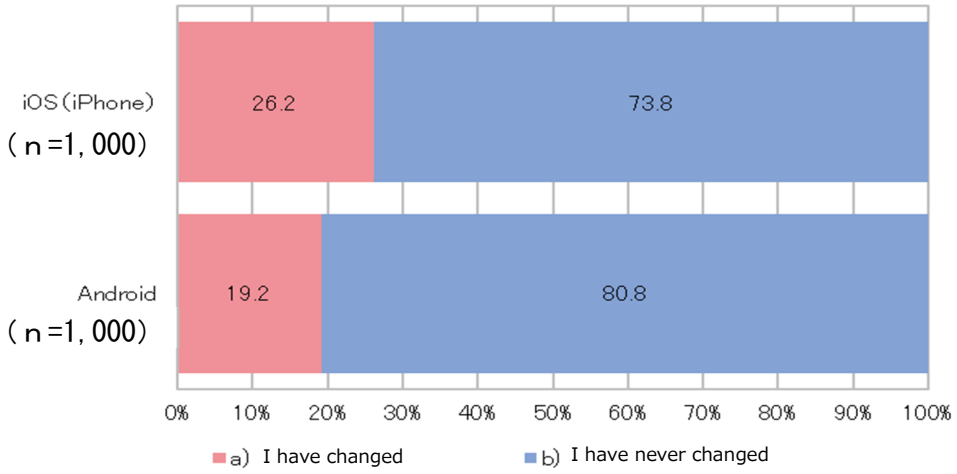
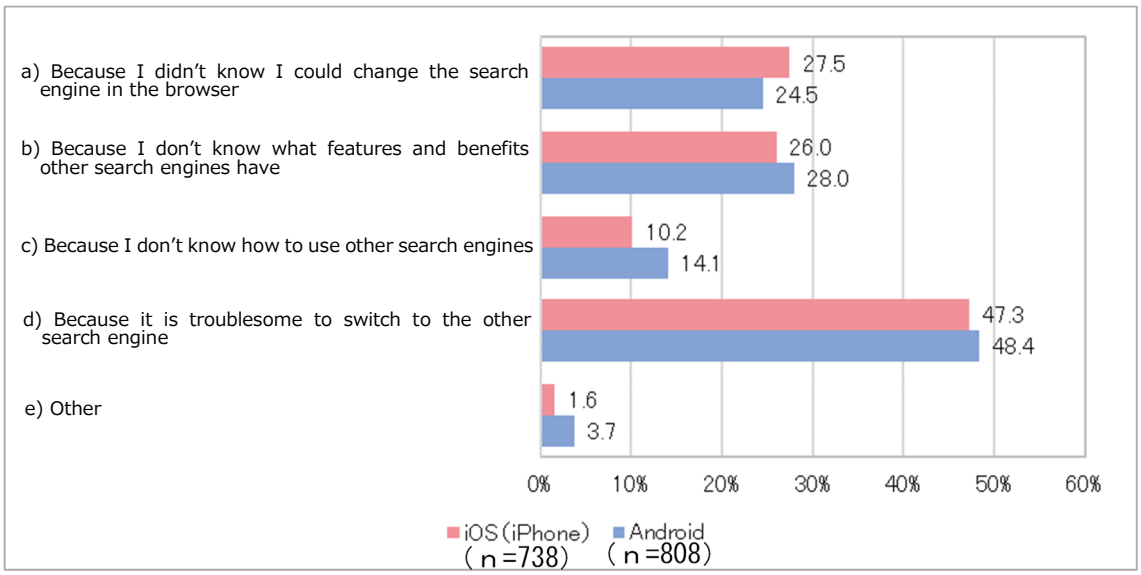


Figure 8-22. The reason that consumers have never changed the default search engine in the browser



All this suggests that for consumers, having apps and services set as default on their smartphones is an important factor in consumers' choice of apps and services to use.

B. Results of survey for app developers

As shown in Figure 8-11, 54.6% of app developers responded that the reason why they feel that Google's/Apple's apps have better competitive conditions than other competing apps is "because they are pre-installed."

This suggests that more than half of competing app developers believe there are differences in competitive conditions between mobile OS providers and them due to pre-installation of apps.

In addition, smartphone manufacturers offered the following opinions:

- We pre-install one app per service because pre-installing many apps takes up memory space and leads to consumer complaints

Also, app developers offered the following opinions:

- Pre-installation of apps requires negotiating with telecommunication carriers or smartphone manufacturers, and it is difficult for one app developer to negotiate with them
- As for iOS, non-Apple apps are not allowed to be pre-installed
- Some apps provided by Google and Apple cannot be uninstalled (those apps can be removed from the home screen, but cannot be completely uninstalled)

C. Claims by Google and Apple

The following claims were made by Google and Apple.

<Google>

- OEMs in Japan have signed Mobile Application Distribution Agreements (MADA) with Google. As a part of MADA, OEMs are required to pre-install a set of Google Mobile Service (GMS) such as Google Search, Chrome, YouTube and Google Play on their Android devices[179].
- Since MADA is a non-exclusive agreement, OEMs can pre-install non-Google apps such as other app stores or browsers on their Android devices, and indeed, OEMs pre-install them. MADA applies to each smartphone device, not to each OEM, so OEMs with MADA are not required to pre-install Google's apps on all Android devices.
- Users can delete some GMS apps. Some GMS apps, however, cannot be permanently deleted for technical reasons. These apps support overall functions of Android devices, so removing them will have a variety of negative effects[180] on users and developers, and will increase support costs for OEMs and telecommunication carriers.
- When a user disables a GMS app, it disappears from the user's smartphone screen and no longer works, so the user can obtain the same effect as deleting the app without the adverse effects described above.
- Some OEMs in Japan that entered into MADA also have an optional Revenue Sharing Agreements (RSA) with Google. RSA offers OEMs the opportunity to monetize the screen space of their devices. OEMs that receive revenue share from Google will be able to reduce the cost of manufacturing Android devices in exchange for promoting Google Search, which benefits consumers by being passed on to them as lower product prices.
- However, OEMs are free to get licenses of Android and the full suite of GMS without having RSA, and competing search services are free to compete for the same promotional opportunities. Some OEMs have not entered into RSA at all.
- Google has MIA agreements[181] with OEMs in Japan. Like Google's RSA, MIA offers OEMs the opportunity to monetize the screen space of their devices, which benefits consumers because it reduces the cost of manufacturing a smartphone device and is passed on to consumers as lower product prices. MIA is a completely voluntary agreement that allows for more flexibility in working with Google.

<Apple>

179 Google Mobile Service
https://www.android.com/intl/_jp/gms/

180 If users are able to delete GMS apps, it will not be able to reset their devices to factory settings for technical reasons, even if they want to sell or reset their devices. Removing GMS apps can also prevent updates to other apps installed on the device.

181 Google says it currently has one active MIA with a partner selling devices in Japan.

- Pre-installation of Apple's own services is not intended to confer it a competitive advantage. Rather, pre-installation simply allows consumers the ability to have access to a variety of services as soon as they activate a new Apple device. While Apple does not pre-install any third-party apps on iPhone, Apple has made it extremely easy for consumers to access alternatives to Apple's own services should they choose to do so.
- Apple's design architecture makes it impossible to pre-install third party apps. Apple alone designs, validates, and populates every core layer of every device sold. Apple is solely responsible for the hardware, firmware, operating system, application programing interface (APIs) and integrated applications on every Apple device.
- Two-thirds of Apple's pre-installed apps can already easily be removed by consumers. However, forcing Apple to remove the remaining pre-installed apps, which are core operating system apps, like Phone, iMessage, Safari Wallet or the App Store, will significantly undermine the consumer experience. These "operating system apps" are integrated into the OS and the device to provide the experience our customers expect. All of the pre-installed operating system apps are designed to work together, and removing one would impact the operation of others.

D. Views from the AMA

As mentioned in 1-(4)-B, there is a certain limit to the number of apps that smartphone manufacturers can pre-install, and a tendency to not pre-install more than one of the same kind of apps. Thus, one pre-installed app tends to be set as the default. The presence of status quo bias[182] in consumers makes it likely that pre-installed or default apps and services will continue to be selected by consumers. In fact, as mentioned in 1-(4)-A, many consumers cited in the consumer survey responded that the reason for using the most commonly used browser was "because it was installed from the beginning of smartphone usage." In light of these, pre-installation and default settings may influence consumers' rational choice of apps and services.

In addition, if pre-installed or defaulted apps and services have specifications that cannot be uninstalled or that require complicated steps to change default settings, consumers' rational choice of apps and services may not work, and for example, consumers may be hesitant to switch to other apps and services. In fact, as mentioned in 1-(4)-A(B), the results of consumer survey show that many consumers were discouraged from changing search engines because changing the default settings was troublesome.

Based on 1-(4)-A and B, Google may be able to exclude its competitors by preventing

182 It means psychological effect of avoiding change and the unknown in order to maintain the current situation.

apps and services provided by other app developers from being chosen by consumers based on comparison of performance and other factors through conducts such as:

(a) As a condition of pre-installation of Google Play, urging other smartphone manufacturers to pre-install other Google's apps, or to set other Google's apps or services as default. Or disabling uninstallation of pre-installed apps, or complicating settings of changing default

(b) Providing financial incentives to smartphone manufacturers on the condition that they do not pre-install other apps competing with Google's apps, or on the condition that they set Google's apps or services as default

Regarding to these concerns, Google has argued, as mentioned in 1-(4)-C, that although some major apps cannot be deleted because the deletion will have various negative effects on users and app developers. Google also has argued that disabling apps will have the same effect as deleting them, and that revenue sharing from Google will enable smartphone manufacturers to lower the marginal cost of their devices, which will benefit consumers as lower product prices.

In this regard, while it is undeniable that pre-installation of apps and default settings for such apps and services contribute to convenience for consumers, pre-installation and default settings may affect consumers' rational choice of apps and services due to the tendency for pre-installed or default apps and services to remain selected or the hesitation of consumers to switch to other apps and services. As a result, it is undeniable that pre-installation and default settings may cause a decrease in trade opportunities for the competitors or the exclusion of the competitors[183].

Therefore, Google's conduct such as (a) above would be a problem under the AMA (Private monopolization, Tie-in sales, Trading on exclusive terms, Trading on restrictive terms, Interference with a competitor's transactions, etc.) when such conduct prevents apps and services provided by other app developers from being chosen by consumers based on comparison of performance and other factors and creates an advantage in consumer choice for its own apps or services compared to those of competitors, causing a decrease in trade opportunities for the competitors or the exclusion of the competitors.

In addition, Google's conduct such as (b) above would be a problem under the AMA (Private monopolization, Trading on exclusive terms, Trading on restrictive terms, Interference with a competitor's transactions, etc.) when such conduct reduces the smartphone manufacturers' incentive of pre-installation or default setting of apps and services competing with Google and creates an advantage in consumer choice for its own

183 Apple, which is also a smartphone manufacturer, makes pre-installation and default settings on its smartphones. Although this section only describes the conduct of Google, it does not mean that Apple's conduct would not be a problem under the AMA.

apps or services compared to those of competitors, causing a decrease in trade opportunities for the competitors or the exclusion of the competitors.

2. Conduct causing unjust disadvantage to the contracted party

In the mobile OS market and the app distribution service market, while the market share of Google and Apple is almost 100% in total, the competitive pressure such as between them and from other companies is not sufficient, as mentioned in Chapter 6 and 7. Therefore, Google and Apple are highly likely to have a superior bargaining position[184] in service transactions with the contracted parties[185].

When Google and Apple have a superior bargaining position in service transactions with the app developers, it would be a problem under the AMA (Abuse of a superior bargaining position) to unjustly cause disadvantage to the app developers in view of normal business practices[186].

The JTFC will examine each of the following conduct as mobile OS providers and app store operators.

⑴ Conduct as the mobile OS providers

Google's and Apple's conduct such as the following would be a problem under the AMA (Abuse of a superior bargaining position) to unjustly cause disadvantage to the app developers in view of normal business practices[187].

- By making mobile OS specification changes (updates) frequently and without giving sufficient preparation time, incurring significant costs for other app developers to adapt their

184 "Guidelines Concerning Abuse of Superior Bargaining Position under the Antimonopoly Act" Section II. 1. and 2. (Excerpt)
"In order for one party to a transaction (Party A) to have superior bargaining position over the other party (Party B), it is construed that Party A does not need to have a market-dominant position nor an equivalent absolutely dominant bargaining position and that it is sufficient if it has a relatively superior bargaining position as compared to the other transacting party. What it means by Party A having superior bargaining position over Party B who is a transaction counterpart, is that when Party A makes a request, etc., that is substantially disadvantageous for Party B, Party B would be unable to avoid accepting such a request, etc., due to the fact that when it becomes difficult for Party B to continue transactions with Party A, Party B's business management would be substantially impeded."
"In determining the presence or absence of superior bargaining position, the degree of dependence by Party B on the transactions with Party A, position of Party A in the market, the possibility of Party B changing its business counterpart, and other concrete facts indicating the need for Party B to carry out transactions with Party A are comprehensively considered."

185 Regarding "⑴ conduct as a mobile OS provider", companies providing products and services used in conjunction with smartphones may also be included.

186 "Guidelines Concerning Abuse of Superior Bargaining Position under the Antimonopoly Act" Section I. 1. (Excerpt)
"if a party who has superior bargaining position over the other party makes use of such position to impose a disadvantage on that other party, in an unjust manner in light of normal business practices, the act would impede transactions conducted based on the free and voluntary decisions of the other party, and put the other party in a disadvantageous competitive position against its competitors, while putting the party having superior bargaining position in an advantageous competitive position against its competitors. Since such act poses the risk of impeding fair competition, it is regulated under the Antimonopoly Act as "abuse of superior bargaining position," which constitutes a form of unfair trade practice."

187 For more on Google's and Apple's views on these changes in mobile OS specifications (updates), see 1-(1)-C.

apps, products, and services to the changes in the mobile OS

⑵ Conduct as the app store operators

The JFTC 2019 Report points out that each conduct by an app store operator (see reference below) can be disadvantageous to business partners and would be a problem under the AMA (abuse of a superior bargaining position).

Regarding “calculation methods and grounds of commission fees,” Apple clarified in October 2022 that certain transactions involving in-app advertising (an advertising service called “boost”) are newly subject to the commission by revising its terms and conditions.

Apple argues that the revisions to these terms do not add new categories or transactions required to use IAPs, nor do they apply the IAP rules to new categories of developers, and that the guidelines were clarified in this regard because developers have always been required to use IAPs when selling “boost” and some developers were not aware that IAPs apply to this type of digital content.

In this regard, in making a judgment on the abuse of a superior position, the following factors must be taken into consideration: 1) the relation between commission fees and direct profit acquired by app developers by using services the commission fees are based on, 2) costs, etc. necessary to operate and renew systems for app stores, and whether there are reasonable grounds for commission fee calculation and claims, and 3) the number of app developers who have no choice but to accept the commission fee in order to continue using the app store.

As described in 1-(2), regarding the issues related app stores, by the implementation of the TFDPA, app store operators above a certain size (Google and Apple) are now required to develop systems for information disclosure and complaint processing. In the 2022 evaluation, it was stated that “At Apple, there was a case of giving 15 days' notice of a change in the App Store pricing table (Tier) price. When making changes to the terms and conditions of provision, etc., it is necessary to provide a sufficient preparation period, taking into consideration the circumstances of the business user, and to explain the details and reasons for the changes in an easy-to-understand manner. In addition to this, it is also necessary to make the process of dialogue with business users more effective. From these perspectives, we will closely monitor each company's response to changes in terms and conditions of provision.” The JFTC will continue to closely monitor Google's and Apple's compliance with the TFDPA, and respond strictly and appropriately to concrete cases that become problematic under the AMA.

(Reference) Descriptions in the JFTC 2019 Report

○ **Change in business terms with contract revision**

A Content of the act

There are cases in which Google and Apple revise their contract and 1) raise commission fees paid by app developers to app store operators, and 2) introduce new, mandatory services and establish a commission fee for this.

B Views on abuse of superior bargaining position

In making a decision, some of the points to be considered include: 1) the content of disadvantageous factors which fall upon app developers with the change in contract, 2) whether there are reasonable grounds on which the contract needed to be revised, 3) the period from notification to implementation of the business transaction revisions with contract change, and 4) the number of app developers which have no choice to accept the disadvantageous terms in order to continue using the app store, regardless of having no profit with incorporating a new system.

○ **Calculation methods and grounds of commission fees**

A Content of the act

There are cases in which Google and Apple collect these commission fees at the app stores such as 1) forcing more disadvantageous content on app developers than what was decided formerly and 2) using the advantageous business position between the app store operators and the app developers to collect commission fees without clearly defined.

B Views on abuse of superior bargaining position

In making a decision, some of the points to be considered include: 1) the relation between commission fees and direct profit acquired by app developers by using services the commission fees are based on, 2) costs, etc. necessary to operate and renew systems for app stores, and whether there are reasonable grounds for commission fee calculation and claims, and 3) the number of app developers who have no choice but to accept the commission fee in order to continue using the app store.

○ **Tasks required towards app developers**

A Content of the act

Google and Apple may request that app developers take actions at app reviews.

B Views on abuse of superior bargaining position

In making a decision, some of the points to be considered include: 1) the relationship between necessary fees for the task in question and direct profits to app developers, such as sales increases due to the task requested by the app store operator, 2) whether there are reasonable grounds on which the requested tasks to app developers are made, and 3) the number of app developers which have no choice but to accept the requested tasks in order to continue using the app store.

○ **Withholding of the payment of sales proceeds**

A Content of the act

When Google and Apple receive the price of a service paid by a consumer on behalf of an app developer, they pay the sales proceeds to the app developers after subtracting the fee, however, they may withhold the payment depending on the transaction situation.

B Views on abuse of superior bargaining position

In making a decision, some of the points to be considered include: 1) the contents of disadvantages experienced by the app developer due to the app store operator withholding the payment of sales proceeds, 2) the presence or absence of a reasonable reason for the app store operator to withhold the payment, such as an objective doubt on the transaction between the app developer and consumer, and 3) the number of app developers that have no choice but to accept the disadvantages to continue to use the app store.

○ **Handling consumers returns or refund request**

A Content of the act

When Google and Apple receive a return/refund request for a purchased product by a consumer, they may demand the app developer to bear the burden for the loss associated with it.

B Views on abuse of superior bargaining position

In making a decision, some of the points to be considered include: 1) the contents of losses to be borne by sellers due to the app store operator accepting the returns/refunds, 2) the presence or absence of rationality regarding return/refund acceptance standards, such as whether or not the app store operator accepts returns/refunds even when there is no fault of the app developer and makes the app developer bear the burden for the losses associated with their decisions, and 3) the number of sellers that have no choice

but to accept the losses associated with the returns/refunds to continue to use the app store.

3. Competitive concerns regarding the level of app store commissions

In 1-(2), the concern about the exclusion of competitors by disadvantaging the apps of competitors by collecting commissions from competitors while not collecting commissions from themselves was discussed. Apart from this point, it has been pointed out that the level of app store commissions may have remained high[188].

In fact, among app developers who responded in the survey that they paid app store commissions and would like to use alternative payment method if it became available in the app store, 90% of them said the reason for the answer was because they would like to keep the commissions low, as shown in Figure 9-2. This shows that there is a deep-seated dissatisfaction with the level of commissions.

Google's and Apple's claims on the level of commissions (a part of 1-(2)-B is reposted) are as follows:

<Google>

- In terms of the level of app store commissions, Google believes that imposing a fixed amount is not the best model for collecting service commissions, but rather reduces the value of the Android ecosystem to users and app developers.
- Based on the current system, about 97% of app developers who provide their apps on Google Play do not pay any commissions. For 99% of app developers who provide their apps on Google Play and qualify for service commissions, 15% or less commission rates are applied[189].

<Apple>

- When Apple launched the App Store over a decade ago, it decided that a commission model was the best business model to encourage developers to create apps for the App Store. It was a simple model — any developer that sold digital content on the Store would pay Apple. It was also a model used by many other software distributors at the time, many of which were charging more than 30% commission.

188 In the open-ended question of the questionnaire survey for app developers, many of them complained about the high level of commissions charged by app store operators.
A market study report by the UK Competition and Markets Authority (CMA) ("Mobile ecosystems market study final report)" also pointed out that the lack of competition for the App Store and Play Store allowed to charge commissions above competitive levels (paragraph 4.206).
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1096277/Mobile_ecosystems_final_report_-_full_draft_-_FINAL__.pdf

189 Google "Evolving our business model to address developer needs" (October 21, 2021)
https://android-developers.googleblog.com/2021/10/evolving-business-model.html

As described above, Google and Apple have argued that the current level of commissions is appropriate. In fact, both Google and Apple apply a 15% commission rate instead of 30% to app developers whose sales are below a certain amount. As claimed by Google and Apple, the number of app developers paying a 30% commission rate is limited. On the other hand, since a 30% commission rate is applied to developers whose sales exceed a certain amount, commission income from these developers appears to account for a high percentage of total commission income[190].

In views from the AMA, the below cases would be a problem under the AMA (Private monopolization, Interference with a competitor's transactions, Abuse of a superior bargaining position[191], etc.).

(1) High commission levels lead to the high price of digital content and services subject to in-app payment, and interfere with transactions between the competitors and consumers, causing a decrease in trade opportunities for the competitors or the exclusion of the competitors

(2) When having a superior bargaining position in service transactions with the app developers, unilaterally setting excessively high commission levels, unjustly causing disadvantage to the app developers in view of normal business practices

Some other app stores set commission rates lower than 30% (around 12%)[192] [193]. If the app distribution service market is competitive and app developers do not rely on specific app distribution channels, the 30% commission rate may decrease in the process of market competition.

However, as mentioned in Chapter 7, there is not sufficient competitive pressure on the app distribution in the app stores provided by Google and Apple, so the level of app store commission cannot be expected to decline by market functions.

Therefore, including the concerns about the level of app store commissions set by Google and

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190 According to some reports citing an estimate by the research firm (Sensor tower), when Google and Apple reduced the commission rate for small businesses to 15%, it is said that the impact was limited to less than a 5% decrease in commission income.
CNBC "Google and Apple are giving up less than 5% of their revenue from apps with payout changes, analytics firm estimates"
https://www.cnbc.com/2021/03/16/google-apple-giving-up-less-than-5percent-of-revenue-from-apps-with-pay-changes-estimate.html

191 According to the JFTC 2019 Report (Chapter 2, Section 4, "1. Acts which could do sellers harm," (2), C), in making a decision, some of the points to be considered include: 1) the relation between commission fees and direct profit acquired by app developers by using services the commission fees are based on, 2) costs, etc. necessary to operate and renew systems for app stores, and whether there are reasonable grounds for commission fee calculation and claims, and 3) the number of app developers who have no choice but to accept the commission fee in order to continue using the app store.

192 While it's an app store for PCs and tablets, the Microsoft Store reportedly charges between 12% and 15%.
Microsoft's documents submitted at a working group of the 39th Digital Market Competition Working Group
https://www.kantei.go.jp/jp/singi/digitalmarket/kyosokaigi_wg/dai39/siryou1.pdf

193 For PC game stores, the Epic Games Store is charging a 12% commission rate.
https://store.epicgames.com/ja/publish

Apple, it is important to take measures in terms of competition policy to increase competitive pressure (see 1-(2)-(c) to (E) and 2-(2)-(B) and (C) in Chapter 9).

4. Assessment of security and privacy claims

Google and Apple have argued that the conduct described in Chapter 8-1 is necessary from the perspective of ensuring security and protecting privacy among consumers[194].

When judging whether any conduct violates the AMA, various factors must be comprehensively considered. In assessing those security and privacy claims, consideration will be given to the rationality of the objective and the appropriateness of the means (whether there are alternative means that are less restrictive, etc.)[195].

For example, Google and Apple claimed that access restrictions such as NFC are for ensuring the security and protecting the privacy of users (Apple), that the introduction of ATT helps to protect the privacy of users (Apple), that the restriction of payment methods[196] [197] is for providing a safe and easy-to-use payment method (Google/Apple), and that non-public data about developers should not be used for purposes other than contributing to the ecosystem, such as developing anti-fraud functions (Google). The following is the evaluation of these claims from the perspective of ensuring security and protecting privacy under the AMA.

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194 The JFTC 2019 Report states that claims were made regarding security and other matters with respect to "Differential treatment between seller and digital platform operator or their related companies" and "Setting a commission on an electronic payment through an app purchase and restriction on the payment outside of an app."

195 Tokyo District Court Decision, April 9, 1997, 1993 (wa) No. 7544 (excerpt) (tentative translation)

Therefore, since this is a case in which the defendant's association established quality standards for the safety of airsoft guns and requested wholesalers and retailers to stop handling products that do not conform to these standards, if the purpose of establishing the voluntary standards in this case is acceptable from the perspective of competition policy, and if the content and implementation of the standards is reasonable to achieve the purpose of establishing the voluntary standards, there is room for a justifiable reason, not falling under unfair trade practices, and not violating the AMA.

Furthermore, if the legal benefit of maintaining a free competitive economic order is compared and balanced with the legal benefit protected by the obstruction in this case, and if it is not contrary to the ultimate purpose of the AMA, there is room for it not to be contrary to the public interest, not falling under unfair competition restrictions, and not violating the AMA.

(omitted)

Therefore, even if the purpose of establishing the voluntary standards is legitimate and the content of the voluntary standards is prima facie reasonable, it should be said that the obstruction could not possibly be considered to be a reasonable method of implementation to achieve the said purpose, that there is no justifiable reason, and that it falls under the category of "encouragement of unfair trade practices" as mentioned above, which is prohibited by the AMA.

196 Understanding Google Play's Payments policy
https://support.google.com/googleplay/android-developer/answer/10281818?hl
"Google Play's billing system is required for developers offering in-app purchases of digital goods and services distributed on Google Play."

197 App Store Review Guidelines
3.1 Payments
3.1.1 In-App Purchase:
If you want to unlock features or functionality within your app, (by way of example: subscriptions, in-game currencies, game levels, access to premium content, or unlocking a full version), you must use in-app purchase. Apps may not use their own mechanisms to unlock content or functionality, such as license keys, augmented reality markers, QR codes, cryptocurrencies and cryptocurrency wallets, etc. (omitted)

- From the standpoint of safety, the removal of ineligible goods and services and ineligible enterprises is sometimes recognized as a legitimate objective in court cases[198] and in past consultation cases (Case 9, review of consultations in FY2011), and "protecting consumers by ensuring the safety of apps" is also recognized as a legitimate objective in the JFTC 2019 Report. In light of this, the rationality of the objective is usually recognized when it can be assessed that an act was committed for the purpose of ensuring the security and protecting the privacy of consumers.
- On the other hand, regarding the appropriateness of the means, such as whether there is no other appropriate alternative to the conduct and whether they are socially appropriate means to achieve the objectives of ensuring the security and protecting the privacy of consumers, careful consideration should be given to whether there are other means that are less restrictive of competition in light of various specific circumstances.
- In determining the appropriateness of such means, it may be necessary to compare and evaluate individual technologies after receiving detailed technical information from the parties, and to quantitatively and qualitatively examine whether technologies other than those currently employed can be used to achieve the same or greater security and privacy protection.
- With regard to the restriction of in-app payment methods, Google and Apple have made argues that the purpose is to provide a safe and easy-to-use payment method (Apple), that its payment system provides a safe and easy-to-use payment method (Google), and that the use of IAPs is necessary for Apple to receive compensation for the operation of App Store and for providing technology to create apps (Apple). However, as mentioned in 1-(2), in response to the requirement by laws and regulations in some countries and regions, Google and Apple have allowed the use of payment systems other than their own in-app payment systems subject to certain conditions and scope. So they have adopted measures other than the restriction of in-app payment. In such a case, it is considered that there is no appropriateness of the means, at least, with regard to the restriction of in-app payment, because it is considered that there are

198 Tokyo District Court Decision, April 9, 1997, 1993 (wa) No. 7544 (excerpt) (tentative translation)
ⅱⅰ. Reasonableness of Purpose of Voluntary Standards
（omitted）, In this voluntary agreement, the act of agreeing not to manufacture and sell airsoft guns without the ASGK seal is recognized as the purpose of ensuring the safety of consumers and their surroundings by preventing accidents caused by airsoft guns that have not undergone safety inspections, and to prevent the occurrence of accidents from causing widespread regulation and damaging the entire industry, and there is no adequate evidence to reverse this finding.
As mentioned above, the AMA stipulates the maintenance of a free competitive economic order as a protective legal interest, but since its ultimate purpose should be to ensure the interests of general consumers and to promote the democratic and sound development of the national economy (Article 1 of the same law), it is reasonable to assume that the purpose of this voluntary agreement is not in any way inconsistent with the spirit of the AMA, since the prevention of accidents caused by the distribution of products for which safety is not ensured is in the interest of consumers.
Therefore, it can be said that the purpose of establishing this voluntary agreement and this voluntary agreement by the defendant union is legitimate.

other appropriate alternative methods without technical consideration.

In the enforcement of the AMA, verifying such security and privacy claims (especially from the viewpoint of appropriateness of means) for certain conducts by Google and Apple concerning the provision of a mobile OS and the operation of app stores may require advanced technical evaluations related to security assurance and privacy protection. Also, in order to carry out such evaluations, there may be cases where a large amount of verification work and highly specialized knowledge are required.

Chapter 9. Proposals from the Competition Policy

[Summary of this Chapter]

- There is insufficient competition in the mobile OS market and the app distribution service market. However, in general, even in a monopoly or oligopoly market, if there is sufficient entry pressure or active competition among incumbent oligopoly operators, market functions are expected to reduce competitive concerns. Therefore, it is effective to create a healthy competitive environment in both markets through measures in terms of competition policy such as increasing the scope for potential competitors to enter the market.
- In the app market and other smartphone-related markets, where a certain degree of competition is taking place, eliminating violations by enforcing the AMA is effective against anticompetitive conduct. However, the market definition and proof of competitive harms may take time, and the verification of issues such as security may require highly specialized knowledge and a large amount of verification work. Thus, it is effective to complement the enforcement of the AMA with measures in terms of competition policy preventing AMA violations and encouraging the improvement of potentially problematic behavior under the AMA.
- The following three measures can be considered in terms of competition policy. While it is desirable for Google and Apple to take the following measures, it is effective to secure them by law to the extent necessary to ensure the effectiveness of the measures.

  1. Prevention of self-preferencing in the app market and other smartphone-related markets
  ⑴ Ensuring equal footing regarding access to mobile OS functions and update information
  (e.g. Permitting access to mobile OS functions so that other developers' apps, products, and services can be interoperable with the mobile OS)
  ⑵ Ensuring equal footing regarding app store management
  (e.g. Making it possible to use a system other than Google's/Apple's in-app payment system; Clarification of the app store's operation costs and income, and actively responding to individual negotiations regarding commission rates, etc.)
  ⑶ Ensuring equal footing regarding use of data collected from other developers' apps
  (e.g. Not using non-public data generated by other developers' apps, products, and services for the purpose of developing competing apps, products, and services)
  ⑷ Ensuring equal footing regarding a consumer's choice of apps and services
  (e.g. Respecting a consumer's rational choice of apps by displaying choice screens)

  2. Ensuring a healthy competitive environment in the mobile OS market and the app distribution service market
  ⑴ Promoting consumer switching in both markets
  (e.g. Improving interoperability, such as providing data portability tools)
  ⑵ Promoting the entry of new mobile OS and app stores
  (e.g. Making it possible to download apps regardless of whether Google's/Apple's app store is used or not)

  3. Ensuring fairness in rule-making for the mobile ecosystem
  (e.g. Notifying relevant developers in advance of any changes to rules, and providing a sufficient explanation after presenting the details and the grounds for such changes)
- In the future, it is expected that a new ecosystem centered products or services other than smartphones will be formed, such as by deriving from the mobile ecosystem. It is desirable for Google and Apple to continue to bring about innovation without hindering the creation of new products or services and the construction of new ecosystems centered on such products or services by developers other than Google and Apple.

Since the mobile ecosystem functions as the foundation of consumers' daily lives as well as the foundation of economic activities of app developers (see Chapter 3), it is significant to develop its competitive environment quickly.

In the mobile OS market and the app distribution service market, where sufficient competitive pressure does not exist, Google and Apple may engage in exclusionary self-preferencing in the app market and other smartphone-related markets or conduct causing unjust disadvantage to the contracted party, as mentioned in Chapter 8. There are also concerns that prices will remain high or quality will not improve or decline within the mobile ecosystem.

If competition is functioning effectively in the mobile OS market, which is the starting point of the layer structure of the mobile ecosystem, the process of market competition is expected to reduce the concerns about price, quality, etc. in the mobile ecosystem. Even if the mobile OS market is not competitive, when the app distribution service market is competitive and app developers do not rely on specific app distribution channels, the process of market competition is expected to improve the concerns about app distribution, such as high app store commissions described in Chapter 8-3.

However, as mentioned in Chapter 8, there is insufficient competition in the mobile OS market and the app distribution service market.

In general, even in a monopoly or oligopoly market, if there is sufficient entry pressure or active competition among incumbent oligopoly operators, market functions are expected to reduce competitive concerns.

Therefore, it is effective to create a healthy competitive environment in both markets through measures in terms of competition policy such as increasing the scope for potential competitors to enter the market and promoting consumer switching.

In the app market and other smartphone-related markets, where a certain degree of competition is taking place, it is effective to eliminate violation by enforcing the AMA against anticompetitive conduct. However, in evaluating and analyzing competitive issues in the mobile ecosystem, it may take time to verify market definition and theory of harms, and as mentioned in Chapter 8-4, verification of issues such as security and privacy may requires a high level of technical evaluation on security and privacy, which would lead to requirement of highly specialized knowledge and a large amount of verification work. In this way, when responding to competition issues in the mobile ecosystem through enforcement of the AMA, it may take considerable time to reach a final conclusion. Therefore, it is effective to complement the enforcement of the AMA with measures in terms of competition policy preventing AMA violations and encouraging the improvement of potentially problematic behavior under the AMA.

Given the current state and characteristics of the mobile ecosystem and certain constraints on the speed of the AMA, the following three measures can be considered in terms of competition policy to create a healthy competitive environment in the mobile OS market and the app distribution service

market and to complement the enforcement of the AMA with measures in terms of competition policy preventing AMA violations and encouraging the improvement of potentially problematic behavior under the AMA.

While it is desirable for Google and Apple to take the following measures, it is effective to secure them by law to the extent necessary to ensure the effectiveness of the measures.

- Prevention of self-preferencing in the app market and other smartphone-related markets (see Chapter 9-1)
- Ensuring a healthy competitive environment in the mobile OS market and the app distribution service market (see Chapter9-2)
- Ensuring fairness in rule-making for the mobile ecosystem(see Chapter 9-3)

1. Prevention of self-preferencing in the app market and other smartphone-related markets

If Google and Apple treat their own apps, products, and services more favorably than those of competitors by using their position in the mobile OS market and the app distribution service market, where sufficient competitive pressure does not exist, Google and Apple may gain a competitive advantage in the app market and other smartphone-related markets against other app developers or enterprises whose products or services used in conjunction with smartphones (these are collectively called “other developers,” the same shall apply hereinafter in Chapter 9). As a result, it may inhibit innovation by the other developers, which in turn may reduce the choice of apps, products and services for consumers.

In order to avoid such a situation, it is necessary to prevent self-preferencing that could adversely affect competition through using their position in the mobile OS market and the app distribution service market, where sufficient competitive pressure does not exist[199].

There are a variety of possible measures to prevent self-preferencing that could harm

199 According to Kittaka, Y., Sato, S., Zennyo, Y. 2022. ”Self-Preferencing by Platforms: A Literature Review,” CPRC Discussion Paper Series (https://www.jftc.go.jp/cprc/reports/disucussionpapers/r4/index_files/CPDP-89-2-E-R.pdf)), which focuses on the impact of self-preferencing by platforms on competition in the market and summarizes competition policy issues based on a review of relevant existing research in economics, several theoretical studies have shown that self-preferencing by platforms does not necessarily have a negative impact on consumers or third-party sellers.

Some of these theoretical research (Zennyo (2022), Hervas-Drane and Shelegia (2021)) also indicate that consumer surplus and social welfare can be increased through lower commissions levied on third-party sellers, given the platforms' self-preferencing. On the other hand, as mentioned in Chapter 8-3, there are existing concerns regarding the level of app store commissions, and it is unclear whether the current level of commissions can be said to increase consumer surplus and social welfare.

Thus, while it is doubtful that the current self-preferencing by platforms would increase consumer surplus and social welfare as theoretical research suggests. Empirical analysis is needed to examine the effects of such self-preferencing and to assess that it is not anti-competitive.

In this regard, the discussion paper points out that policy evaluation of self-preferencing requires detailed market research on a case-by-case basis, and that, due to constraints on data acquisition, there is less empirical research than theoretical research and the accumulation of empirical analysis is insufficient, and further progress on relevant empirical research and the establishment of a framework for data acquisition and disclosure for that purpose is a future issue.

Therefore, it is desirable for platforms to make as much data as possible available in public for such analysis.

competition, including strict structural remedies to separate mobile OS development and app store operations from app development (e.g. making each of them independent as a separate legal entity, etc.). On the other hand, if such strict structural remedies are implemented, it is undeniable that there is possibility of causing operational inefficiencies and thereby impeding innovation in mobile OS providers or app store operators, resulting in disadvantages for consumers[200]. Even if the divisions are separated by such structural measures, as long as the separated divisions belong to the same corporate group, the incentive for self-preferencing within the group will not be lost.

Therefore, it is appropriate to prevent any self-preferencing that may adversely affect competition by means of behavioral measures. Google and Apple may adversely affect competition through self-preferencing by using their position in the mobile OS market or the app distribution services market, where sufficient competitive pressure does not exist. Therefore, it is desirable for Google and Apple to take the following measures.

⑴ Ensuring equal footing regarding access to mobile OS functions and update information

It is desirable for Google and Apple to take the following measures:

(A) Permitting access to mobile OS functions at the same timing, scope, and level as Google's/Apple's apps, products, and services, so that other developers' apps, products, and services can be interoperable[201] with the mobile OS (except when justifications are recognized from the viewpoint of security assurance and privacy protection)

(B) Disclosing information on mobile OS updates at the same timing and contents as for Google's/Apple's app development staff (excluding urgent updates such as vulnerability response and verification in advance the operation of a new feature intended by an update, where there are valid reasons)

⑵ Ensuring equal footing regarding app store management

It is desirable for Google and Apple to take the following measures:

(A) Avoiding giving more favorable treatment to their own apps regarding search results,

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200 Article 8-4 of the AMA provides that whenever a monopolistic situation exists as defined in article 2(7), the JFTC may order the relevant enterprise to transfer a part of its business (Competition Restoration Order). On the other hand, since Competition Restoration Order can have various effects on the business activities, each requirement pertaining to the regulation on monopolistic situations is strictly specified.

201 Relatedly, as for the remedies for the acquisition of Fitbit, Inc. by Google LLC, Google Group shall remain the following items (i) and (ii) for wrist-worn wearable device manufacturers for 10 years from the date of the Acquisition, in order to ensure interoperability in response to competitive concerns.

(i) To make certain Android APIs (core interoperability APIs) available, without charge for access, under the same terms that apply to all other Android APIs that Google group makes available as part of AOSP, and on a non-discriminatory basis from the Parties. In addition, not to degrade Android APIs by reducing their functionalities relative to the Parties.

(ii) Not to discriminate against wrist worn wearable device manufacturers by withholding, denying or delaying their access to the functionalities of Android APIs to be made generally available to other Android Smartphone device app developers for use with an Android apps.

rankings, recommendations, etc. on the app store compared to those of competing app developers, and apply transparent, fair, and non-discriminatory terms

(B) Conducting the app review based on a fair, reasonable and non-discriminatory terms and without unfavorably treating competing app developers' apps

(C) Not restricting other app developers from indicating different terms of sale and payment within their apps (including advertising within the app for lower selling prices via other app developers' websites, and including external links and buttons in the app that direct users to buy outside the app), and not restricting the conclusion of contracts with or the receipt of service fee from users outside the app stores

(D) Making it possible to use Google's/Apple's in-app payment system and/or a system other than Google's/Apple's in-app payment system, and separately setting the commission for using the in-app payment system and the commission for using the app store

(E) Clarifying the cost of operating an app store (including costs incurred to provide in-app purchases) and the income from operating an app store, and actively responding to individual negotiations regarding commission rates and the price table applied to other app developers using the app store, assuming a reasonable range of developers, such as paying more than a certain amount of commissions

In relation to (C) and (D), the JFTC confirmed the intentions of app developers paying app store commissions when alternative payment method became available in the app store through the survey for app developers. As shown in Figure 9-1, 59.9% of app developers answered that they would like to use an alternative payment method. Thus, the need for alternative payment methods in app stores is relatively large.

Regarding (E), the JFTC confirmed the reasons why they responded that they would like to use an alternative payment method. As shown in Figure 9-2, 90% of the respondents said they would like to keep the commissions low, indicating that dissatisfaction with the level of commissions persists. In addition, as shown in Figure 9-2, nearly half of app developers want to set the in-app prices flexibly rather than being bound by the price table set by the app store operator, indicating that there is a certain need for flexible charging. At least, it is considered possible to negotiate individually[202] [203] with the large developers paying more than a certain

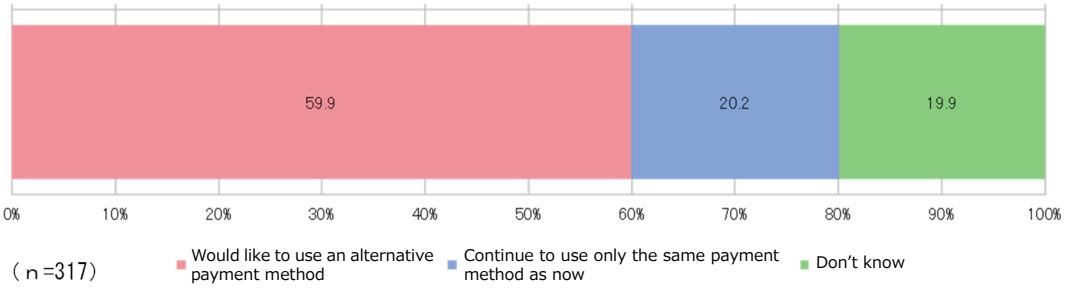
202 The Samsung Galaxy Store says rates other than the prescribed commission rate may apply under a separate agreement.
https://seller.samsungapps.com/terms/termsAndConditions.as

203 Apple is reported to have had some communication at management level with Amazon in offering the Apple Video Partner Program, which includes a 15% reduction in commissions.
https://www.cnbc.com/2020/07/29/apple-tried-to-lure-amazon-video-app-with-lower-15percent-fee-eddy-cue-email.html
Currently, the program is available to all eligible developers, and many developers in addition to Amazon are participating in the program.

amount of commissions. As a precondition for such negotiations, it is desirable that the costs of app store operations and income from app store operations are made transparent.

With respect to (C), currently, app developers may sell digital content and services on their websites at prices lower than the in-app prices. This is because consumer purchases outside the apps (e.g. websites) are not subject to commissions charged by app store operators, and therefore, the prices on websites are lower than the in-app prices. On the other hand, not all consumers purchase digital content and services via websites, and there are likely to be a certain number of consumers who are not aware that they can purchase them through websites. In this regard, from the perspective of promoting competition through rational choice among consumers, it is desirable for consumers to become widely aware that it is sometimes more advantageous to purchase off-app websites.

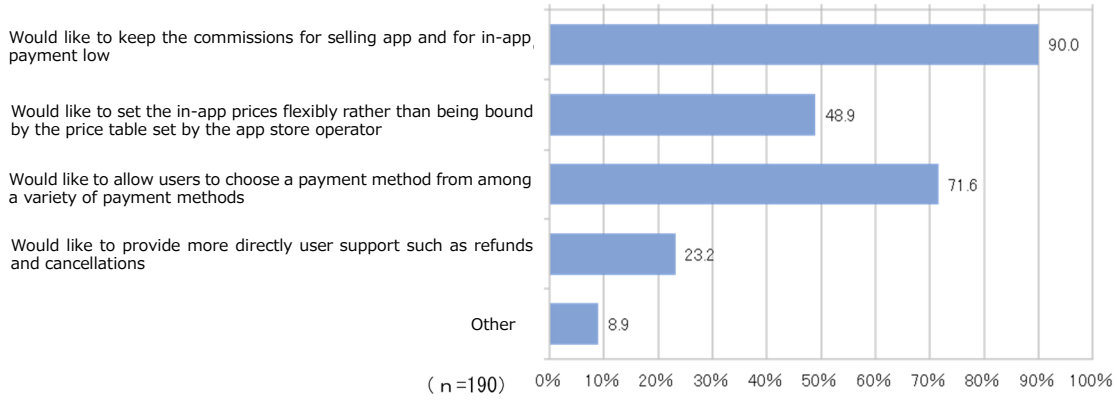
Figure 9-1. The intentions of app developers paying app store commissions when alternative payment method became available in the app store (single answer)



In March 2022, Google announced that it had signed a deal with Spotify to allow it to implement Spotify's own in-app payment system. Then, in September of that year, Google allowed developers of all non-gaming apps to participate in the pilot program.
https://android-developers.googleblog.com/2022/03/user-choice-billing.html
https://android-developers.googleblog.com/2022/11/continuing-our-commitment-to-user-choice-billing.html

Figure 9-2. The reasons why they responded that they would like to use an alternative payment method

Reasons for those who answered “would like to use an alternative payment method” in the above question (multiple answer)



⑶ Ensuring equal footing regarding use of data collected from other developers' apps

It is desirable for Google and Apple to take the following measures:

(A) Not using non-public data (e.g. Information about users, location information, purchase and payment history, etc.) generated by other developers' apps, products, and services for the purpose of developing competing apps, products, and services when collecting such data (including collecting information on in-app transactions involving other developers (e.g. Transaction time, transaction amount, etc.) through the in-app payment system)) by using their position as the mobile OS provider or the app store operator, and constructing a mechanism to share the data with other developer’s subject to the user’s opt-in consent

(B) Not using non-public data obtained in the app review regarding newly developed or updated apps of other developers for the development of Google’s/Apple’s apps, products, and services

With regard to (A) and (B), the actual status of internal data handling is considered difficult to verify directly from the outside. In the mobile OS market or the app distribution service market, it is desirable that Google and Apple limit access rights to a necessary and sufficient range as to the distribution of data, etc. between internal departments and actively communicate the status of management of such access rights to the outside.

⑷ Ensuring equal footing regarding a consumer’s choice of apps and services

It is desirable for Google and Apple to take the following measures:

(A) Not imposing technical or other restrictions when consumers switch apps and services such as allowing users to remove pre-installed apps (except those required for mobile OS

and smartphone devices) and avoiding complicating the process of changing default settings.

(B) Respecting consumers' reasonable choices regarding apps and services, such as browsers, search engines, and app stores, by making it easier for consumers to recognize the features and advantages of each, compare and examine them, and allowing consumers to choose whether to display choice screens for those apps and services or not (i.e. not to change the default setting).

Regarding (A), in the consumer survey, the percentage of consumers who have changed the default search engine in the browser was 26.2% for iOS users and 19.2% for Android users, as shown in Figure 8-21. As for the reasons why consumers have never changed the default search engine in the browser, as shown in Figure 8-22, 47.3% of iOS users and 48.4% of Android users answered that it is troublesome to change to another search engine. Also, 27.5% of iOS users and 24.5% of Android users answered that they didn't know they could change search engines in the browser, and 10.2% of iOS users and 14.1% of Android users answered that they did not know how to user other search engines[204]. Thus, it can be inferred that the time and effort involved in changing the default settings and the uncertainty of the method of change are factors preventing the change of the default settings.

In connection with (B), the JFTC asked in the consumer survey whether they would prefer to see a screen that allows them to choose the browser installed on their home screen for the first time after purchasing a smartphone. As shown in Figure 9-3, 46.7% of iOS users and 41.3% of Android users said they would prefer to see a choice screen of browsers, while a certain number of iOS users (22.3%) and Android users (23.3%) preferred to have one of the browsers set up in advance without a choice screen. Similarly, as shown in Figure 9-4, 45.1% of iOS users and 40.0% of Android users answered that they would prefer to see firstly a choice screen of search engines to be the default in the browser, while a certain number of iOS users (23.2%) and Android users (26.9%) answered that they would prefer to have one of the search engines had been set up in advance. Thus, there are many people who want to see a choice screen, but given that there are a certain number of people who do not want to see a choice screen because it is better to have a browser or search engine set up in advance. Therefore, it is necessary to emphasize rational choices[205] for consumers while ensuring that convenience

204 As shown in Figure 8-20, 414 (41.4%) iOS users and 537 (53.7%) Android users are currently using only one browser. When these users were asked why they are using only one browser, 29.2% of iOS users and 30.4% of Android users answered that “It is troublesome to find the other browser and download it” while 13.3% of iOS users and 13.8% of Android users answered that “I don’t know how to use other browsers.”

205 In order to make reasonable choices, consumers need to be aware of the features and benefits of browsers, search engines, app stores, and other apps and services.

The JFTC confirmed in a consumer survey why consumers do not use a browser other than the browser they are currently using. As a result, 60.9% of iOS users and 57.0% of Android users answered they don’t know what features and benefits other browsers have, as shown in Figure 8-20. On the other hand, only 9.2% of iOS users and 11.4% of

is not reduced for consumers.

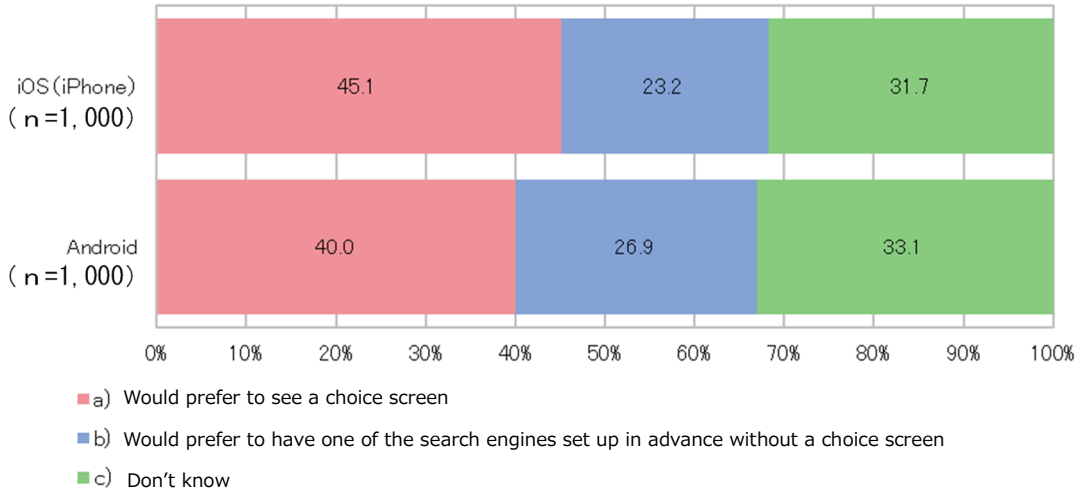
Figure 9-3. Whether or not consumers want a screen that allows them to choose the browser installed on their home screen (single answer)

Android users answered that they are using only the current browser as a result of comparing multiple browsers. Therefore, it can be inferred that the majority of people do not recognize the features and benefits of other browsers, and do not compare browsers.

The JFTC also confirmed why consumers never changed the default search engine in the browser. As shown in Figure 8-22, 26.0% of iOS users and 28.0% of Android users answered that they don't know what features and benefits other search engines have. Thus, it can be seen that there are a certain number of people who do not recognize the features and benefits of other search engines and do not compare search engines.

In this way, it can be seen that many consumers are not aware of information such as the features and benefits of apps and services that are necessary for consumers to make rational choices.

Figure 9-4. Whether or not consumers want a screen that allows them to choose the default search engine in the browser (single answer)



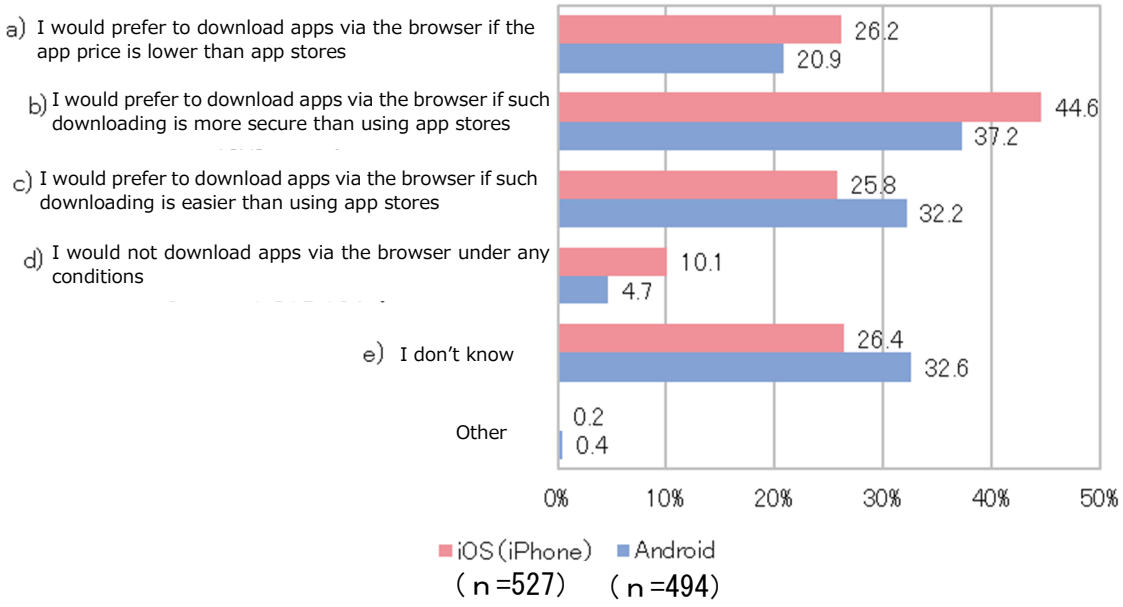
2. Ensuring a healthy competitive environment in the mobile OS market and the app distribution service market

In order to secure a healthy competitive environment by increasing potential entry pressure and revitalizing competition among business operators as much as possible, it is desirable for Google and Apple to take the following measures in the mobile OS market and the app distribution service market, where sufficient competitive pressure does not exist.

With regard to the following measures, it is assumed that those measures are within the range not interfering with security and privacy protection . However, as described in Chapter 9-3, even if it is for the purpose of ensuring security or protecting privacy, careful consideration is required from the viewpoint of appropriateness of means, and anti-competitive conducts are not permitted unlimitedly.

In relation to competitive pressure and security in the app distribution services market, the JFTC asked consumers under what conditions they would prefer to download apps via the browser. As shown in Figure 9-5, only 10.1% of iOS users and 4.7% of Android users answered "I would not download apps via the browser under any conditions," while 44.6% of iOS users and 37.2% of Android users answered "I would prefer to download apps via the browser if such downloading is more secure than using an app store. Thus, it can be inferred that there is a need among consumers to side-load apps, depending on the conditions. Also, it can be seen that the security aspect is important as a condition for the side-loading. While it is desirable to diversify the distribution channels for apps, it is assumed that such channels must be within a range that does not compromise security and privacy protection.

Figure 9-5. Under what conditions consumers prefer to download app via the browser (multiple answers allowed)



(1) Promoting consumer switching in mobile OS market and app distribution service market

In order to increase the potential competitive pressure in the mobile OS market and the app distribution services market and to revitalize competition among enterprises, it can be required to make it as easy as possible for consumers to switch between the mobile OS or app stores they use and thereby increase competitive pressure from competing mobile OS or app stores.

In order to reduce as much as possible the barriers for consumers in switching the mobile OS or app stores, it is desirable for Google and Apple to take the following measures:

(A) Improving interoperability in app distribution service market, such as enabling consumers to access and use digital content acquired from routes other than Google's/Apple's app store, if there is no problem in terms of security assurance and privacy protection

(B) Improving interoperability in mobile OS market, such as providing data portability tools for free to consumers

(2) Promoting the entry of new mobile OS and app stores in mobile OS market and app distribution service market

In order to increase potential competitive pressure in the mobile OS market and the app distribution services market and to revitalize competition among enterprises, it can be required

to increase the possibility of entry of a new mobile OS or app store as much as possible, thereby increase entry pressure from potential competitors.

Given this, in order to reduce as much as possible the barriers to entry into the mobile OS market or the app distribution services market, it is desirable for Google and Apple to take the following measures:

(A) Not entering into a contract with a smartphone manufacturer that prohibits the manufacture of smartphone devices equipped with a competing mobile OS or the development of a competing mobile OS in the mobile OS market

(B) Making it possible to license app store apps and other apps separately when licensing major apps to smartphone manufacturers in the app distribution service market

(C) Making it possible to download apps (including app stores apps or app store-like apps operated by other enterprises) in the mobile OS and the app distribution service markets regardless of whether Google's/Apple's app store is used or not if there is no problem in terms of security assurance and privacy protection, regarding smartphone devices equipped with Google's/ Apple's mobile OS

(D) Allowing app developers to make reasonable choices regarding the use of browser engines, and not imposing technical or other restrictions on web apps in the mobile OS and the app distribution service markets if there is no problem in terms of security assurance and privacy protection

3. Ensuring fairness in rule-making for the mobile ecosystem

When looking at the mobile ecosystem as a whole, Google and Apple are central players of their respective ecosystems and in a position to make the rules of the mobile ecosystem. As mentioned in Chapter 2, smartphones are a product for which there is no other alternative for consumers. The mobile ecosystem functions as the foundation of consumers' daily lives, and a certain degree of publicness has emerged. Based on this, it is desirable for Google and Apple, which are in a position to make rules in the mobile ecosystem, to take the following measures to develop a fair competitive environment within their respective ecosystems.

For example, updates to the mobile OS is naturally an essential act in itself, but there are cases where an update requires apps to be rebuilt or limits the use of the mobile OS functions used by the apps. In these cases, the mobile OS updates may affect the business activities of other developers participating in the mobile ecosystem, such as the development of apps, goods and services, and consequently may affect competition among such other developers.

Given these circumstances, from the perspective of ensuring the fairness of rules, transactions, etc. within the mobile ecosystem, if activities of enterprises participating in the mobile ecosystem are expected to be affected, it is desirable that Google and Apple, which are in a position to make

rules in the mobile ecosystem, take the following measures when making changes to the rules, transactions, etc. in the mobile ecosystem, except in cases deemed to be urgent, such as an urgent vulnerability response or elimination of criminal activities.

(A) Notifying relevant developers in advance of any changes to rules within the mobile ecosystem. Also, after presenting the details and the grounds for such changes, providing a sufficient explanation, such as responding to inquiries appropriately

(B) Providing a sufficient grace period between notification of any changes and implementation of such changes

(C) When receiving reasonable complaints about the content of a change from related businesses, considering such complaints as much as possible and holding sufficient discussions with related businesses

In addition, for the purpose of ensuring security and protecting privacy, restrictions on the distribution of apps, such as not allowing an app developer to provide apps, and restrictions on the quality of apps, such as not allowing other app developers to access the functions of the mobile OS, are usually justifiable for their objectives, as mentioned in Chapter 8-4. However, it is not always clear whether the appropriateness of the means is recognized, even if the rationality of the objective is recognized. Even if it is for the objective of ensuring security or protecting privacy, careful consideration is required from the standpoint of the appropriateness of the means, and anticompetitive conduct cannot be allowed unlimitedly.

4. Promotion of competition related to the formation of new ecosystems

The mobile ecosystem functions as the foundation of consumers' daily lives, and smartphones have become a daily necessity for consumers. On the other hand, in the future, it is expected that a new ecosystem centered products or services other than smartphones will be formed, such as by deriving from the mobile ecosystem.

At this time, apart from the points of view mentioned in Chapter9-1 to 9-3, as a point of view concerning the formation of an ecosystem centered on these new goods and services, it is desirable for Google and Apple, which are central players in the mobile ecosystem, to continue to bring about innovation without hindering the creation of new products or services and the construction of new ecosystems centered on such products or services by developers other than Google and Apple. As a result, consumer surplus and social welfare are expected to increase as the benefits of such innovations are returned on to consumers.

Chapter 10. Future Commitment of the JFTC

With the progress of digitalization of the economy, digital platforms have become a fundamental part of our country's economy and society, and people regularly use their smartphones to access various apps and digital content and services provided through such digital platforms. Therefore, it is very important to understand the actual state of competition in mobile OS and app distribution routes, and to develop a competitive environment in the market for apps, digital content and services provided on smartphones, and goods and services used in conjunction with smartphones. Based on this, the JFTC clarified the status of transactions and competition in the mobile OS market and the app distribution service market, and clarified our views on the AMA and competition policy.

The JFTC continues to closely monitor the state of competition in the mobile ecosystem, and continues to respond strictly and appropriately to concrete cases involving a mobile OS provider or an app store operator that become problematic under the Antimonopoly Act (AMA), including the issues under the AMA identified in Chapter 8 of this report.

Also, the JFTC, as pointed out in Chapter 9 of this report, will make public the contents of the report in order to realize the development of a competitive environment in the mobile ecosystem, and also continues to proactively engage in collaboration and cooperation with the Headquarters for Digital Market Competition and other related ministries or agencies to develop a competitive environment.

Additionally, in the future, a new ecosystem centered products or services other than smartphones may be formed. The JFTC pays close attention to trends related to such new ecosystem, and conducts market studies as necessary to clarify issues on the AMA and competition policy while taking consumer interests into consideration.

Furthermore, competition authorities in other countries and regions are also showing great interest and concern about the global business activities of digital platforms. The JFTC exchanges opinions with competition authorities in other countries and regions and makes use of opportunities offered by organizations such as the Organization for Economic Cooperation and Development (OECD) and the International Competition Network (ICN) to promote continuous collaboration with relevant overseas authorities and develop a competitive environment.