

A Study on the Comparison of Privacy Policies Related to Online Tracking in Korean, Japanese and EU Web sites

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Abstract

Online tracking using cookies is actively under way to track user behavior on online sites. The tracking data obtained from the apps is handed over to a third party. Extensive personal information transmitted to third parties is used for marketing by identifying the interest, preference and propensity of person. This may cause damages like personal information infringement. Information gathered through online tracking is collected indiscriminately, so it is necessary to make it more clear through Privacy Policy. In this study, we surveyed the types of cookies used in online tracking, selected sites in Korea, Japan, and EU to find out whether online tracking information is reflected in the privacy policy. Additionally, we will find out what kind of difference exists in contents by country.

Keywords : Personal Information, Online Tracking, Privacy Policy, Online Cookies

I. INTRODUCTION

Online tracking is an activity that collects visitor's behavior and information such as visitor's internet site visit, search history, posting inquiry and automatically collected data (IP, user's search contents, product inquiry contents, etc.). The data obtained from the apps is handed over to a third party. Extensive personal information transmitted to third parties is used for marketing by identifying the interest, preference, and propensity of person. This may result in damages from personal information infringement, user anonymity, and inaccurate analysis. Recently, Facebook contracted with about 60 manufacturers including Samsung, Apple, and BlackBerry to allow smart phone makers to connect with friends, religion, politics, future personal events and other data that Facebook members have. [1]

A common technique for online tracking is to track visitors' behavior using 'cookies', but it is not limited to 'cookies', 'fingerprints', or 'cookies' and 'Cross Device Tracking' which can be seen in various forms, which is getting more advanced over time. [2] The technology for tracking visitor behavior is evolving, and Internet browsers offer features such as 'InPrivate' and 'Do Not Track' to prevent visitors from tracking

their actions. It is not enough for visitor to cope with the behavior and information collected indiscriminately.

The privacy policy of each website specifies that IP addresses, cookies, service use records, location information, and device information collected during the use of the service may be generated and collected. Information gathered through online tracking is collected indiscriminately, so it is necessary to make it more clear through Privacy Policy.

In this study, we surveyed the types of cookies used in online tracking, selected sites in Korea, Japan, and EU to find out whether online tracking information is reflected in the privacy policy. Additionally, we will find out what kind of difference exists in contents of the privacy policy by country.

II. PREVIOUS RESEARCH

Online tracking is done through 'cookies'. A cookie refers to a file that is left on the user's computer when a user of the web sites. That is, it is a temporary file containing user information generated when a user accesses a web site.[3] When the cookie is used, it can be determined whether the user has received the request information for the web site from the server level.

Cookies sent from the web site and cookies sent by another entity can be divided into first party cookies and third party cookies according to the transmission subject. 1st party cookies can only read the user's cookie on the web sites that issued the 1st party cookies with the cookie generated by the web site visited by the user. The third party cookie is a cookie generated by a third web site, not a website visited by the user. In particular, 3-rd party cookies are used extensively in advertising companies. Such a cookie is received by the browser while the user visits a web page containing third party advertisement contents.[4]

Researches related to online tracking were largely conducted by researches analyzing laws and policies, and empirical studies on the behavior of visitors at each site. Yoo(2016) analyzed the risk of user 's personal information leakage using web cookies from a technical point of view.[5] Jeong(2018) analyzed online customized ads and behavior information. In particular, it conducted a study of the laws and guidelines on

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behavior information regulations of the United States, Korea online customized ads.[6]

Ko(2013) studied by examining the cookie status of Korea's leading web sites and applications, smart phones unique identification (IMEI) access logs from September 2012 to January 2013. As a result, there were 8.4 third party cookies and 1.3 mobile sites on the web sites. [7] Ko(2017) studied online tracking of 91 web sites in Korea as a future study of KO(2013). As a result, online tracking status varied greatly depending on the size of individual sites or companies, and some of them were found to collect enough information to perform cross device tracking to track users using multiple devices.[8]

Previous studies on legal and empirical analysis and behavioral analysis related to online tracking were active. However, no research has been done on the need for a notice level higher than general privacy policy, which is posted at the bottom of the site for online tracking. In the case of Korea, Article 30 (Establishment and Disclosure of Privacy Policy) of the 'PERSONAL INFORMATION PROTECTION ACT', and 'ACT ON PROMOTION OF INFORMATION AND COMMUNICATIONS NETWORK UTILIZATION AND INFORMATION PROTECTION, ETC' It is specified to disclose to the Privacy Policy the information about the installation, operation, and denial of a device that collects personal information automatically, such as an information file for access to the internet. The EU specifies in Article 22 of the EU General Data Protect Regulation (GDPR) and EU Cookie Law on profiling-based online advertising(online tracking). Therefore, it is important to clearly disclose or agree to the tracking facts in actual online tracking and disclose it in detail in the personal information processing policy.

In this study, we investigated which types of cookies used on online tracking in Korea, Japan and EU web sites, including the online tracking information related to the privacy policy. In this way, we will find out the difference of contents related to online tracking which is disclosed in privacy policy by country.

III. RESEARCH METHOD

3.1. Select of Target Web sites

For this study, we selected Korean, Japanese, and EU web sites to study the privacy policy of country-specific sites. There may be a point of direct comparison between the country (Korea, Japan) and the continent (European Union). However, in order to examine the legal characteristics, we selected Korea, Japan and the European Union with continental law system.

To select the country-specific sites, we used the "Similarweb" (<https://www.similarweb.com/>) site, which lists site rankings through traffic, visitor analysis, as well as the Top 100 sites on February 1, 2019. As for the EU sites, three sites were selected in Germany, France and England with the highest population in the EU as of January 1, 2017. Among the Top 100 sites, we have excluded foreign sites that disclose privacy policy based on the country where headquarter of the company is located, illegal file sharing, adult, game, gambling, and social controversy sites.

Table 1. Web sites by Country

Korean sites	Japanese sites	EU sites
naver.com,	docomo.ne.jp,	web.de,
daum.net,	rakuten.co.jp,	t-online.de,
tistory.com,	livedoor.jp,	gmx.net,
nate.com,	auone.jp,	orange.fr,
uplus.co.kr,	goo.ne.jp,	leboncoin.fr,
donga.com,	kakaku.com,	orange.fr,
11st.co.kr,	line.me,	free.fr, bbc.co.uk,
kakao.com,	tabelog.com,	dailymail.co.uk,
gmarket.co.kr	cookpad.com	theguardian.com

3.2. Revision date of Privacy Policy on Target Web sites

The privacy policy of this study is based on the privacy policy that was released during the period summarized in the table below. For the Japanese sites(smt.docomo.co.jp, rakuten.co.jp) that did not specify a revision date in the Privacy Policy, we determined the revision date as February 1, 2019, the start date of this study. In the case of the EU, there were sites (web.de, t-online.de, gmx.net, free.fr) that did not specify a revision date in the Privacy Policy like the Japanese site. When the Privacy Policy is amended based on the GDPR, so we specified on the revision date as May 25, 2018, the effective date of the GDPR.

As a result of analyzing the Privacy Policy as the criteria of this study, it is difficult to write the full address of the target site as it is, so the address is abbreviated and the site abbreviation method is as follows.

Table 1. Web sites abbreviation and Privacy Policy revision dates

Web Sites	Abbreviation	Revision Date
naver.com	NA	March 7 2019
daum.net	DA	November 9 2018
tistory.com	TS	January 1 2018
nate.com	AT	December 26 2018
uplus.co.kr	UP	March 1 2019
donga.com	DO	September 13 2018
11st.co.kr	ST	January 1 2019
kakao.com	KA	February 15 2019
gmarket.co.kr	GM	August 10 2018

Web Sites	Abbreviation	Revision Date
smt.docomo.co.jp	OC	February 1 2019
rakuten.co.jp	RA	February 1 2019
livedoor.jp	LI	January 1 2014
auone.jp	AU	May 30 2017
goo.ne.jp	GO	July 12 2018
kakaku.com	KU	October 22 2013
line.me	IN	January 15 2018
tabelog.com	TA	October 22 2013
cookpad.com	OK	May 30 2017
web.de	WE	May 25 2018
t-online.de	TO	May 25 2018
gmx.net	MX	May 25 2018
orange.fr	OR	January 8 2019
leboncoin.fr	LE	February 1 2019
free.fr	FR	May 25 2018
bbc.co.uk	BB	May 2018
dailymail.co.uk	AI	May 24 2018
theguardian.com	TH	November 2018

Table 1 continued...

3.2. Revision date of Privacy Policy on Target Web sites

We defined the index related to online tracking in Privacy Policy of Korean, Japanese and EU web sites. This index consists of indicators that are considered to be important based on personal information protection life cycle among the items of Privacy Impact Assessment Guide and Personal Information Management System (PIMS). The score was given through the indicator whether the relevant content was specified. (2 points if clearly stated, 1 point if not explicitly stated, 0 point if not specified)

Table 3. Privacy Policy Index of Online Tracking

Indexing Group	Detailed Index
A. Notifying	A.1. Do you disclose whether online tracking is used or not through your privacy policy?
	A.2. Is there a separate explanation for online tracking on the homepage? (Separate description page, not included in the privacy policy)
B. Collecting	B.1. Do you specify laws or company's internal regulations about the personal information collected through online tracking?.
	B.2. Do you disclose the information (eg. IP, MAC address, etc.) collecting for online tracking?
	B.3. Do you disclose online tracking tools (eg. Google Analytics, etc) in the privacy policy?
	B.4. Do you explicit consent to the personal information collecting through online tracking?
C. Transferring and Providing	C.1. Do you transmit personal information to use a secure method (eg. technical protection)
	C.2. Do you disclose third-party advertisers using personal information collected through online tracking?
	C.3. Do you disclose the history of use personal information collected through online tracking on the homepage?
	C.4. If you use your personal information collected through online tracking for purposes other than the purpose or provide it to a third party, are you notifying the entity of this fact?
	C.5. If you use your personal information collected through online tracking for purposes other than the purpose or provide it to a third party, are you disclosing that on the homepage?
D. Deleting	D.1. When you use your personal information collected through online tracking, do you disclose the information to destroy it without delay?
E. Guaranteeing user rights	E.1. Do you disclose contents and methods to refuse online tracking?
	E.2. Do you have procedures for handling information requests for personal information collected through online tracking?
	E.3. Does the homepage provide the ability for the subject to prevent online tracking directly?

IV. Analysis of Research Results

The results of the analysis related to online tracking in the Privacy Policy of Korean, Japanese and EU web sites are as follows.

Table 4. Comparison of Online Tracking in Privacy Policy

		A.1	A.2	B.1	B.2	B.3	B.4	C.1	C.2	C.3	C.4	C.5	D.1	E.1	E.2	E.3	SUM
Korea	NA	2	2	2	2	0	0	0	0	2	1	1	2	2	2	0	18
	DA	2	2	0	2	0	2	0	0	2	1	1	2	2	2	2	20
	TS	2	0	0	2	0	0	0	0	2	1	1	2	2	2	0	14
	AT	2	0	0	2	1	0	0	1	2	0	0	2	2	2	0	14
	UP	2	0	0	1	0	0	0	0	2	0	0	2	1	2	0	10
	DO	2	0	0	1	0	0	0	2	2	2	2	2	2	2	0	17
	ST	2	0	0	2	0	0	0	0	2	1	1	2	2	2	0	14
	KA	2	2	0	2	0	2	0	0	2	0	0	2	2	2	2	18
	GM	2	2	0	2	0	2	0	0	2	0	0	2	2	2	2	18
Japan	OC	2	2	0	1	2	0	1	2	2	2	2	0	2	1	0	19
	RA	2	2	1	1	2	2	2	2	1	2	2	0	2	0	2	23
	LI	1	0	0	1	2	0	0	2	1	2	2	0	2	1	0	14
	AU	2	2	1	0	1	0	0	2	2	2	2	0	2	2	0	18
	GO	2	2	0	2	2	0	1	2	2	2	2	0	2	2	0	21
	KU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	IN	2	0	0	2	2	0	0	1	2	0	0	0	1	2	0	12
	TA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	OK	1	2	1	2	2	2	0	2	2	2	2	0	2	1	0	21
EU	WE	2	1	2	2	2	2	1	1	2	1	1	2	2	1	2	24
	TO	2	2	2	2	2	0	1	2	2	2	2	2	2	1	0	24
	MX	2	1	2	2	2	2	0	2	2	0	1	2	2	1	2	23
	OR	2	2	0	2	0	2	0	2	2	0	0	2	2	1	2	19
	LE	2	1	2	2	2	2	0	2	2	0	2	2	2	1	2	24
	FR	1	2	1	2	2	0	1	2	2	2	2	2	2	0	2	23
	BB	2	2	1	2	2	0	1	2	2	2	2	1	2	1	1	23
	AI	2	0	2	2	2	0	1	2	2	2	2	1	2	2	0	22
	TH	2	2	2	2	2	0	1	2	2	2	2	0	2	2	0	23

4.1. Comparative results for each country's web sites

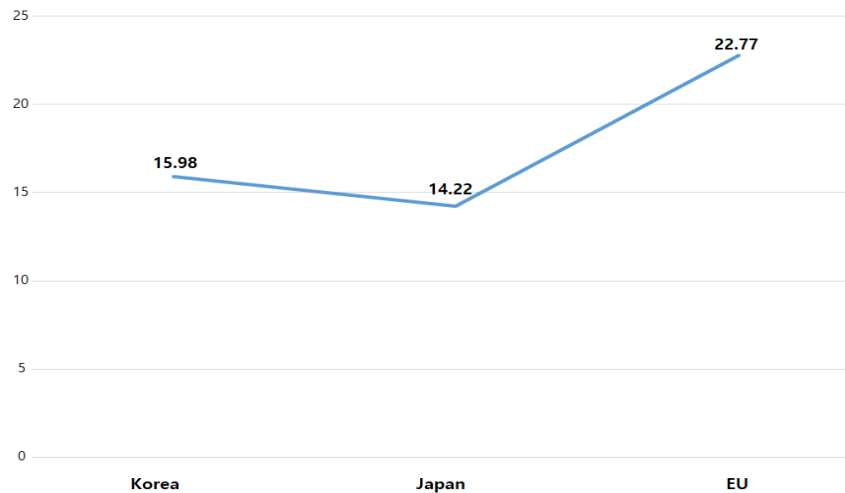


Fig.1. Comparison result for each country's web sites

The result of average scores from Korean, Japanese and EU web sites, is 15.89, 14.22, and 22.77 respectively.

The online tracking policy of the Korean sites disclose the purpose of using personal information collected automatically through cookies and how to set or deny the installation of cookies. It has been shown that only the parts specified in Korea 'PERSONAL INFORMATION PROTECTION ACT' are specified. Unlike other countries, Korean web sites is characterized by the fact that only the items specified in Korea's law are listed.

In the personal information processing policy of the Japanese site, the items related to online tracking are shown differently on each site. In particular, the most important feature of the privacy policy of Japanese sites is that some sites have specified personal information processing policies at the bottom of the site, such as Korean and EU sites. Some sites have information

protection regulations, personal information processing policies, personal information de-identification publicly available on the site. There were two sites that have disclosed privacy policies did not include online tracking content, and the remaining seven sites contained detailed information about online tracking, which indicated that there was a significant difference between the privacy policy of Japanese sites about online tracking information.

EU sites showed an average of 22.77 points in this study. Average scores of EU sites were higher than the average scores of the Korean and Japanese sites. The most important feature of the EU sites privacy policy was updated in accordance with the implementation of the GDPR on May 25, 2018, and had approval of DPO in accordance with the provision of DPO designation from Articles 37 to 39 of GDPR.

4.2. Comparison Results by Indexing Group

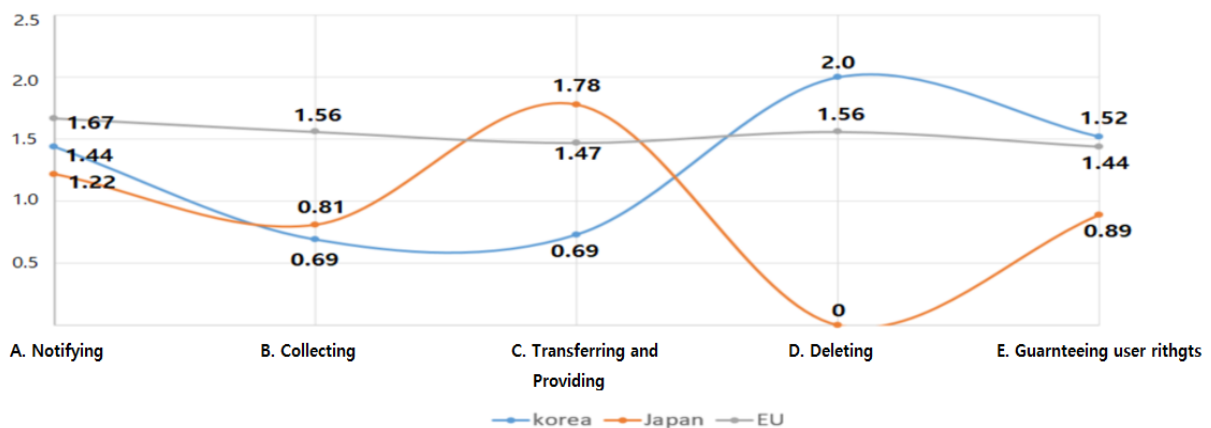


Fig.2. Comparison result by indexing group

The average score of each index was calculated based on the results of <Table 4>. As a result, there is a clear difference in the privacy policy of each country that describes online tracking.

Korean sites received the highest score among the three countries in index of Deleting (2.0) and Guarantee of user rights (1.52). This is a requirement for the 'PERSONAL INFORMATION PROTECTION ACT' in Korea (Article 16 (Limitation to Collection of Personal Information), Article 21 (Deleting of Personal Information)). This means that Korean web sites stripped of information collected through online tracking and privacy policy of Korean web sites reflects a law that restricts information collection through online tracking to a minimum if the person no longer wanted in online tracking.

Japanese sites received the highest score among the three countries in index of Transferring and providing (1.78). Although the Personal Information Protection Act of Japan enacted the Personal Information Protection Act, which encompassed the private sector in 2003, the Personal Information Protection Act was revised in September 2015 because of the large and small problem of free use of personal information. The revised Personal Information Protection Act includes the definition of personal information, the establishment of a legal system for promoting utilization and utilization of data, the free use of anonymous processing information, the scope of opt-out, and the transfer of personal information abroad. However, Japan's Privacy Information Protection Act does not have any direct legal provisions related to online tracking, and there is no Privacy Policy that must be included directly on the site, such as the Korean Personal Information Protection Act.

In addition, the concept of 'Personal identification code' appears in Article 2(2) of the Japanese Personal Data Protection Act. The 'Personal identification code' refers to a character, number, symbol and other codes, it can be regarded as one of the provisions of the Japanese Personal Information Protection Act related to online tracking, which is specified to be able to identify the specific individual. However, the terminal identification code (IMEI), IP addresses, etc. are not included in the personal identification code. Japan focuses on the format in which personal information is recorded, including documents, drawings, electronic records, and voices.[9] Therefore, Privacy Policy of online web sites related to online tracking allows us to cope with the processing of personal information by using online tracking through opt-in and opt-out method of personal information protection law. The opt-in method is used for sensitive information (personal information to be considered important), but the opt-out method is applied for other information. As shown above, the Japanese web sites showed that Privacy Policy clearly expresses the Transferring and providing of online tracking more than Privacy Policy of Korean and EU web sites.

EU web sites received the highest scores in index of Notifying (1.67) and Collecting (1.56). 'Opinion 04/2012 on Cookies Consent Exemptions' states how to use and consent to cookies, and GDPR emphasizes the most important 'cookies' in online tracking, which is shown in the Privacy Policy. In online tracking, GDPR emphasized it should be the most positive

indication of consent and it should be opt-in system. When accessing web sites that are people to the sites applied by GDPR policy as a clear and positive statement of consent, they are opting for consent to the use of cookies information via the 'Agree' and 'Non-Confidential' buttons. This is the clearest and most active sign of consent in relation to online tracking laws more than other countries.

It is also possible to withdraw collection of online tracking for the right of those who want to refuse online tracking. In GDPR, if personal information is processed for the purpose of direct marketing, data subject(person) has the right to oppose the processing of personal information about him/her for the marketing at any time, including profiling in the case of direct marketing. It should provide a way for a person objecting to online tracking to do the opposite. If a data subject withdraws his consent, he or she must provide an easy and clear method of withdrawal, as the data subject originally agreed to. However, four of the nine European web sites selected for this study (Germany, France, and the UK) have explicitly agreed to collect cookies. One Germany site (t-online.de), one French site (free.fr), three UK sites (bbc.co.uk, dailymail.co.uk, theguardian.com) are based on the GDPR in Privacy Policy. However, the cookies collection consent is not followed.

V. CONCLUSION

This study has compared and analyzed privacy policy of online tracking in Korean, Japanese and EU web sites. As a result, the average of 22.77 points in EU (15.89 in Korean and 14.22 in Japanese sites) is the best reflection of online tracking in the Privacy Policy. Most sites of EU offer separate descriptions through 'Cookies' or 'Privacy and Cookies' in addition to their privacy policy. Korean sites showed high scores in personal information destroy and guarantee of rights, Japan sites in transferring and providing, and EU sites in online tracking publicity and collection sections. It seemed to reflect the legal characteristics that each country wanted to protect. Korea has sections called personal information destroy and guarantee of rights in Korea Personal Information Protection Act, and Japan has been able to flexibly select opt-in method and opt-out method in transmitting personal information to Japan Personal Information Protection Act. EU states that the GDPR requires explicit consent when collecting personal information and collecting online cookies.

For this study, the characteristics of online tracking in the privacy policy of country-specific sites were analyzed, but the following limitations exist. First, it does not guarantee that the site fully reflects the characteristics of the country, because there are not enough samples to be analyzed by 9 sites in each country. Many of the Top 100 sites published on the "similarweb" site, which was the site selection criteria for selecting sites for illegal file sharing sites, adults, games, Gambling, and social controversy, it was difficult to obtain many specimens.

Second, similarities and differences in the legal systems of Korea, Japan, and EU are needed. Indexes used in this study were based on the Privacy Impact Assessment Guide and the Personal Information Management System (PIMS) based on

Korea PERSONAL INFORMATION PROTECTION ACT. So detailed indexes reflect the contents of PERSONAL INFORMATION PROTECTION ACT in Korea. Therefore, applying it to the Privacy Policy of Japan and EU sites may be a little unreasonable.

Therefore, we will compare the legal items related to online tracking among laws related to personal information protection of each country, and we will study similarities and differences thereafter.

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REFERENCES

- [1] Facebook accused of giving over 60 device makers inappropriate access to user data, THE VERGE, 2018.
- [2] Information Security Technology for Applications: 16th Nordic Conference on Security IT Systems, Talinn, Estonia, 2011, 31-33.
- [3] Choi Myung-gu, The age of multimedia and the society - the study of the cookies and the individual information, 2003, 77.
- [4] Bittersweet cookies. Some security and privacy considerations, Rodica Tirtea - ENISA, Claude Castelluccia - INRIA, Demosthenes Ikononou, 2011, 3-4.
- [5] Yoo Ho Geun, A study on the analysis of the status of cookies collection and 3rd party cookies and ways to develop, 2016
- [6] Soo-youn Jeong, Regulation status and Implications of behavioral information of online customized advertising, KISDI, 30(2), 2018, 1-23.
- [7] Haksoo Ko, Sangmin Lee, An Analysis of Gathering of Personal Information by Major Korean Internet Sites, Korea Law & Economics Association, 2013, 181-216.
- [8] Haksoo Ko, Bonhyo Koo, Jong Yoon Kim, An Analysis of User Information Tracking by Internet Websites in Korea, Korea Law & Economics Association, 2017, 409-465.
- [9] A Study on Japanese Personal Information Protection Legislation and Policy Analysis, Personal Information Protection Commission, 2017.