

Barun ICT

2019. 10
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newsletter

Barun ICT Research Center conducts research on various ICT issues to explore socially desirable solutions.
Barun ICT Research Center aims to contribute to healthy and ethical ICT society.

BARUN ICT Events

The 8th Asia Privacy Bridge Forum



On September 5 (Thurs.), Barun ICT Research Center, along with the Ministry of the Interior and Safety and the Korea Internet & Security Agency (KISA), hosted the 8th Asia Privacy Bridge Forum (APB Forum) at Kim Soon-Jeon Hall of Yonsei University. With privacy experts from Korea, Japan, Taiwan, the Philippines, India, Indonesia, and other Asian countries, the APB Forum held presentations and discussions on the theme, “Human-centered and Trustworthy AI Technology.” In the first session, Director of the Personal Information Protection Division at KISA, Hyun-joon Kwon, presented on the personal information protection issue in Korea. During the second session, Daewon Kim from Kakao Corporation discussed the ethics of Kakao algorithms. Moreover, Professor Sung-Bae Cho of Yonsei University and Professor Myuhng-Joo Kim of Seoul Women’s University each gave a presentation for the third session. The experts’ discussion at the end of the day, in particular, laid the groundwork for international cooperation and information exchange through the discussion of the Cross-border Information Request / Collaboration Toolkit, developed at the previous 2018 APB Forum.

Following the morning’s keynote speech on September 6 (Fri.), discussions on the status and future plans of India’s Personal Data Protection Bill 2018, the Philippines’s Data Privacy Act 2012, and Indonesia’s privacy and information protection regulations were held, in addition to Japan, Taiwan and Korea announcing their progress in the APEC CBPR membership and participation incentives. Subsequent presentations included the issue of the global corporation, Facebook, and its AI ethics and information security policy. Lastly, the panel discussions explored the issue on privacy-related legal systems and global privacy regulations in several Asian countries, as well as debated upon the future challenges. Each presentation from the APB Forum is detailed in the following. 

APB Forum Day 1: Experts Debate

The first day of the APB Forum was comprised of domestic and international experts considering the future of privacy issues and AI policies. Additionally, there was a discussion on improving the Cross-border Information Request/ Collaboration (CIR) Toolkit developed by the APB Forum.

◆ Session 1. Personal Information Protection in Korea



Hyun-joon KWON
Korea Internet &
Security Agency

Laws and Programs in Korea Data Protection

In this session, Hyun Joon Kwon shared that privacy protection and control is mandated by the Constitutional Court as a basic right. To protect it, the general law as well as several specific sector laws have been established. He further introduced how KISA carries out various programs under the legal system, such as providing ePrivacy Clean Service, Personal Data Protection Level Assessment, Inspection of Personal Data Management, 24-hour online monitoring of personal data, a personal data breach report call center (118), and online and offline education programs.

◆ Session 2. Future Privacy Issues in Asia



Daewon KIM
Kakao Corp.

Kakao Algorithm Ethics

Dae Won Kim emphasized that although Kakao is known for its messenger service, it uses AI as its critical technology for services, and has since established ethical guidelines based on company philosophy and discipline. Kakao Algorithm Ethics was first announced in January 2018 and is the first AI developer to release ethical guidelines in South Korea. These guidelines were based on five categories, which included preventing bias, learning data operation, algorithm independence, and explanations about the algorithm. In August 2019, a sixth clause was added concerning the inclusion of tech and service. Kim stated that since developing countries currently do not have AI and their cultures may not be reflected in its future, there is a need to have ethics conversations on a global level.

◆ Session 3. The AI Policy for the Future



Sung-Bae CHO
Yonsei University

AI: A Giant Standing on the Shoulders of Giants

Professor Sung Bae Cho of Yonsei University started with a question regarding the extent to which we can trust predictions made by AI. In order to trust decisions made by AI algorithms, he stated that they must be 1) reliable and fair, 2) explainable, and 3) not harmful. Famous examples of AI such as IBM's Watson and AlphaGo are considered low-level AI, as the AI of the future holds enormous potential to be applicable in a variety of fields such as bio information analysis and AI robots. He stressed that we should consider not only technology but also security, crime, law and ethics. In particular, he stated that it is necessary to correct and mitigate the bias of AI data for fairness of AI, and to do this, he introduced a way to correct biased data.

The Ethics of Artificial Intelligence and its Technical Implementation Trends

Professor Myuhng Joo Kim of Seoul Women's University introduced the Seoul PACT, which is the result of his research team's work on the development of artificial intelligence ethics. Unlike most other countries' AI ethics, which is applied only to developers, Seoul PACT distinguished itself by including AI developers, service providers, users, and the government. Over the past four years, Japan, the US, South Korea, China, and the EU have announced their own AI ethics. In April 2019, the OECD also adopted the AI Ethics Principle, emphasizing that AI ethics is not a matter of choice but a necessity for the sustainable growth of AI. In particular, it suggested that the socially marginalized should be included, that AI should be able to correct prejudice and discrimination, and that the algorithm should be explainable.



Myuhng-Joo KIM
Seoul Women's University

◆ Session 4. Improving International Information Request and the Cross-border Information Request/Collaboration (CIR) Toolkit in the AI Era

Discussions on Improving the Cross-border Information Request/Collaboration Toolkit in the Case of Personal Data Breach

Director Beomsoo Kim of Barun ICT Research Center, Yonsei University, discussed how the advent of cross-border businesses allow global companies to collect personal information from all over the world, and as a result, personal information breach incidents continue to occur. He emphasized that the breach of personal information of global companies is not a problem that occurs only in one country, but it requires international cooperation between related countries or institutions. Although the number of requests for information between countries for the breach of personal information is increasing every year, there is a lack of standardized forms and processes for requesting information. Because this does not facilitate international cooperation, the APB Forum developed the CIR Toolkit and will continue to improve and solve problems in information requests.



Beomsoo KIM
Barun ICT Research Center

APB Forum Day 2

◆ Keynote Speeches

IT Audit and Control in Digital Transformation

Min Youn Cho from Deloitte Korea gave a keynote presentation on IT audits and internal controls in the digital transformation era. Digital technology also affects IT audits and internal controls; the representative digital technology is the cloud, Robotic Process Automation, visualization, advanced analytics, and blockchain. This digital technology provides in-depth analysis that increases the utility of forecasting, improving economic and business productivity, and other positive effects. However, he stressed that poorly designed automation solutions or the automation of complex processes require caution as they lead to financial losses. On the other hand, blockchain, the digital distributed ledger agreed upon by network participants, may also affect the need for auditing financial statements and auditors. It is predicted that even when recording transactions on the blockchain, there would still be a need to provide adequate audit evidence regarding the nature of the transaction.



Min Youn CHO
Deloitte Anjin LLC

BARUN ICT Events



Yeong Mahn YOU
Hanyang University

Human Intelligence surpasses Artificial Intelligence: Direct with Wisdom and not with Knowledge

What makes humans special? Yeong Mahn You, a professor at Hanyang University who introduced himself as a knowledge ecologist, stressed the importance of human intelligence in the age of artificial intelligence. He stated that human intelligence surpasses AI in four areas: curiosity-driven questioning, sensitivity-based empathy, imagination-based creativity, and problem oriented practical wisdom. In particular, 'smart' is the ability to quickly find the correct answer to a question with a fixed answer. On the other hand, 'intelligence' is the ability to keep asking questions about 'open-ended questions' and where imagination is more important than knowledge. Furthermore, if knowledge is the addition of structured data and learning through experience, wisdom is taking insights from accumulated data and developing them into hyperconnected intelligence.

◆ Session 1: Good Privacy and Data Protection Practices in Asia



Smitha Krishna PRASAD
Centre for Communication
Governance,
National Law University
Delhi

Privacy in India: From Fundamental Rights to the Data Economy

The Personal Data Protection Act was enacted in 2000. While the penalty for violations were added when revising the act in 2008, difficulties were apparent as the act was lacking details and still in process. In 2009, a biometric identity database project called Aadhaar sparked controversy over proper personal information collection and its usage. This sparked a discussion about the Personal Data Protection Bill in 2018. On the other side, issues related to personal protection such as digital payments, health data, and e-commerce still persist, but consistency is lacking in enacting and applying the law. Consequently, customers have limited choices when using various digital services.



Rejyl B. SIANG
National Privacy
Commission

The Data Privacy Act (2012): Operationalizing Transparency and Consent in Automated Decision-Making

In the Philippines, The Data Privacy Act (2012) applies to 23 sectors including hospitals, pharmacies, and schools. Overall, the act contains rules that stakeholders in the private sector must follow when collecting or utilizing automatic or hand-operated data within and outside the country. Specifically, there are 8 parts including the main principle and notification system to protect data and privacy, compliance, and penalties. The five axes of law abidance are i. appointment of information protection executive (CPO), ii. Measurement of risk in privacy or its impact, iii. Creation of privacy management program iv. Measurement of privacy and data protection level v. Practice of notifying periodically when personal information is hacked. The main principle of the privacy and personal information protection highlights transparency, legitimate purpose, and proportionality. It is explicitly noted that a creator of the data must be notified of the purpose of information usage and the range of processions transparently. A prime example is The Personal Information Usage Agreement in smartphone applications. Since application users provide too much personal information to application developers when using a single application, other measures should be considered rather than just the personal information usage agreement notice.

◆ Session 2: International Transfer and Protection of Personal Information through the APEC CBPR

How the Personal Information Protection Commission Pursues Cross-border Flows of Personal Data in a Free and Safe Manner

In early 2019, mutual propriety assessment was made to effectively exchange data between EU GDPR and Japan APPI after three years of discussion and consideration. During the discussion, similar frameworks were shown on both sides, and differences such as retransmission of information from Japan or the EU to other countries was mainly discussed which needs urgent action or protection Japan first joined the CPEA in November 2011, the CBPR in April 2014, and accredited as first AA (Certification Authority) by JIPDEC. Currently seven countries including Korea, Japan, Taiwan, and Singapore are participating in the APEC CBPR and the number of countries planning to join appears to be increasing. Japan, on the other hand, encourages other countries to participate since it is expected to have a positive effect on the advancement of personal information and privacy protection level, invigoration of the economy, and establishment of standards within the Asia-Pacific region where most countries have a complex legal system. As a means of promoting the CBPR, Japan considers applying it to their legislative system and tries to develop safe and smooth access of data through APEC CBPR.



Junichi ISHII

Personal Information
Protection Commission

Latest Privacy Legal Development in Taiwan & Its Current Progress in APEC CBPR System

In Taiwan, personal information protection law that was enacted in 2012 is currently being revised. There is an official personal information management system, TPIPAS, in order to effectively protect personal data. Anxiety regarding personal information protection is on the rise among the public as online fraud and crimes such as voice phishing continue to increase. TPIPAS first started off with the idea that numerous companies that utilize clients' information are not fully aware of its management; however, now it became one of the best personal information management systems among similar e-commerce options in Taiwan. In the initial phase of bringing the system, they encourage companies to utilize the system so that ignorance of personal information protection related law could be alleviated-which in turn could increase customers' trust. As a result, the companies that utilized the system were able to effectively protect data and help improve performances in e-commerce. The Taiwan financial department is the organ of the TPIPAS, and the Science & Technology Law Institute (STI) is left in charge of the business on TPIPAS related education and training.



Duncan LEE

Institute for Information
Industry



Jaesuk YUN

Korea Internet &
Security Agency

APEC CBPR: Main Contents and Implementation Plans in Korea

The quantity of global data and its market are increasing sharply. Plenty of global companies collect and access personal information and many countries try to form their own regulations accordingly. For example, the EU established the GDPR in 2018, and similarly California's CCPA in 2018, Japan's APIP in 2017, China's Network Security law in 2018, and Vietnam's Cyber Security Law in 2019. It is important to note that there are differences in regulations of the U.S. and Europe. In addition, PPC acknowledges CBPR as a single law; consequently it has gained significance. These types of changes in regulation are shown worldwide. Even though the importance of the digital economy is rising, there is a high chance of getting involved in legal issues that are related to personal information since each country has different legislation.

These aspects help raising effective value of the CBPR. The APEC CBPR was proposed in order to make transmitting data more smoothly among countries. One of the characteristics of APEC CBPR is that adaptation and application is not compulsory but rather voluntary when applying it, and it does not replace the original policy. In the case of Korea, selection of Accredited Agency (AA) and details of CBPR management are underway. A potential benefit that the CBPR might bring is a network effect. In other words, the number of participating countries is increasing (currently 8 countries and Philippines is set to join this year) and this could later bring down data transmission expenses as more countries join.

◆ Session 3: New Approaches for Successful Information Security of Asian Corporations in the AI Era



Ouk HEO

Facebook, Korea

Privacy Implications for the Use of AI and Strategies to Mitigate Risks: Perspectives from Facebook

When developing artificial intelligence algorithms to protect personal information and mitigate the risks, Facebook implements strategies to 1) secure data and 2) build fair and unbiased AI. Firstly, since data security and retention are the most important factors when collecting data, Facebook prioritizes personal information protection by designing its algorithms to delete data from the Facebook server when the data creator deletes it. Though artificial intelligence was used to build the algorithm, the philosophy behind data collection and usage are still people-oriented. In order for AI machine-learning to perform properly, diversity of collected data, such as images and voices, must be ensured. Moreover, the Facebook team of privacy officers, AI developers, AI reviewers, machine-learning teachers, etc. must collaborate to develop and warrant fair and ethical AI. In particular, the Fairness Flow Tool, developed by a group of researchers who studied artificial intelligence ethics, is applied in order to make the evaluation of artificial intelligence unbiased and fair. Not only is Facebook committed to creating algorithms that benefit users and executing a variety of strategies using AI to mitigate AI-related risks, but it also aims to raise awareness in individual users about their right to information protection.

Personal Data and AI: Building Responsibility and Trust

In Indonesia, Facebook is regarded as a social media platform to share information about personal political beliefs; the side effects of this have been various profiling and data exploitation. Moreover, Indonesia's AI technology is not as advanced as other countries, and is in the relatively early stages of development. However, as 70% of Indonesia's 260 million people use the Internet, it is necessary to regulate the future of the nation's privacy and AI ethics. One inhibition to this pressing issue is that the concept of privacy is not well known to the Indonesian public and lacks the specificity of the law, especially with regards to AI in the industry. Although some regulations, such as information and electronic trading laws, government regulations, and government department enforcement rules have been enacted, several limitations still exist. In particular, more effort should be made regarding data protection through consent, purpose specification, breach notification, and accountability.



Sinta Dewi ROSADI
Padjadjaran University

◆ Panel Discussion: A New Roadmap for Privacy and Personal Data Protection in the AI Era



After opening discussion on the various ways to apply the EU's GDPR to other countries, Executive Director of Barun ICT Research Center, Beomsoo Kim noted that little was said on how the GDPR would be executed in regards to interdependence between countries. From this aspect, Kim highly praised Japan for their breakthrough on GDPR implementation. In response, the Japanese delegation replied that their CBPR is not only a flexible program, but also guarantees the basic level of privacy protection. Rather, they asserted, the lack of certified companies makes it necessary to actively promote the CBPR. In additional comments, India raised the issue in which a variety of U.S. companies including Wal-Mart and Amazon, were concerned that the U.S. government would be at a disadvantage if data became localized in India. Talks between the two governments have been initiated, but changes in legislation would be possible only after the results of the negotiations. Taiwan also discussed ways to improve the Taiwanese law enforcement that are not as strictly enforced compared to Korea's personal information protection policy. The Philippines also announced their aim to issue international certification marks; to this end, they are working to increase the competency of professionals (persons in charge of privacy protection, practitioners, etc.) to increase the national capacity of privacy protection. Indonesia stated that privacy is very new to the general public, but that it expects legislation to be submitted to Congress by next year.

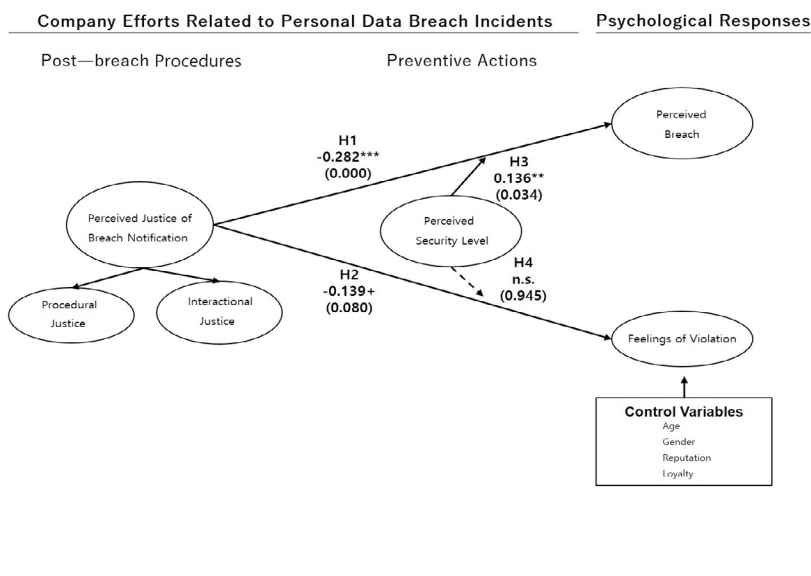
After the panel discussion, a Q&A session with the audience was held in regards to sharing various problems and current situation in Asian countries, particularly on how access records are managed in each country and how the future of privacy protection should be developed. 🌐

Appropriate Actions of Firms to Successfully Cope with Personal Data Breach Incidents?

Kiyun Kim, Beomsoo Kim, Yunmo Koo (2019). Effect of the Justice of Personal Data Breach Notification and Perceived Security Level on Individual Psychological Responses: A Multi-theoretic Approach. *The Journal of Internet Commerce Research*, 19(4), 59-79.

Kiyun KIM, Beomsoo KIM, Yunmo KOO

Barun ICT Research Center, Yonsei University



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010-7431-1000

Personal Data Breach Notification (Perceived Legitimacy: High)

통지 내용	Personal Information Leak Notice
유출된 개인정보의 항목	당사에서는 지난 12월 12일 14시 30분경 내부 데이터베이스를 통해 고객님의 일부 정보가 해킹에 의해 유출된 사실을 확인하였습니다.
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Personal Data Breach Notification (Perceived Legitimacy: Low)

A recent increase in personal data breaches is causing trouble for businesses in terms of creating and sustaining positive relationships with customers. While causing primary damage, such as damage to the corporate image, it causes a negative impact on the trust between the companies, which in turn makes it difficult to retain existing customers and acquire new ones. On the practical side, there have been various efforts to prevent personal information breach and respond effectively in the case of incidents; on the theoretical side, many studies have been conducted to address this issue. As proactive measures, management such as information security compliance and governance have been studied along with technical measures for improving security, such as personal information breach monitoring system and encrypted communication protocol, while personal information breach notices, customer complaints, victim relief, and financial compensation have been given afterwards. Previous research has approached companies' actions on information breach accidents separately, differentiating between before and after. Because both sides are not integrated into one point of view by taking a partial approach to factors that may affect personal information breach accidents, a systematic guideline cannot be provided for the process of establishing a comprehensive information security policy and detailed plans of a company.

With adopting a multi-theory approach that encompasses a service recovery perspective, justice theory, and psychological contract theory, this study examines how preventive actions and post-personal data breach procedures of businesses affect customers' psychological responses. An empirical analysis of survey results revealed that ensuing actions following personal data breach accidents have a meaningful impact on the customer's cognitive and emotional responses. Furthermore, the higher the level of security was perceived by customers through the company's website, the less impact personal information breach had on the negative cognitive response. However, the perceived security level did not produce a significant moderating effect on the relationship between the perceived legitimacy of personal information breach notice and the negative emotional response of the individual.

The 3rd Cybersecurity Workshop



September 17, 2019
Murray Hall, Yonsei University

Barun ICT Research Center hosted “the 3rd Cybersecurity Workshop” on the 17th of September 2019 at The Lounge, in Murray Hall of Yonsei University. The Ambassador Michael Reiterer from the Delegation of the European Union to the Republic of Korea explained that cybersecurity agenda has been included in the foreign policy of the EU and emphasized the necessity of building a peaceful cybersecurity cooperation especially between the Republic of Korea and the EU. Cybersecurity is one of the main aspects of the EU-Asia security cooperation along with maritime security, counter terrorism, crisis management, and peace keeping operations. One of the backgrounds of this agenda is the threat coming from North Korea. Recently, the EU has developed the Cyber strategy with the cooperation with NATO. The Collective Defense Commitment of NATO states that an attack on one NATO country could lead to the collective involvement of them all. The EU also initiated GDPR (General Data Protection Regulation) which made possible to place the EU on top of the information protection sector.


Professor Cuihong Cai from the International Studies and International Relations department at Fudan University in China presented on the International Cybersecurity Regime Scarcity using the neo-realistic approach. He also highlighted the inadequacy of trust in terms of cybersecurity and the security dilemma. Professor Joohee Park from the Korea University Cyber Law Centre presented on State-Sponsored Cyber Economic Espionage under the Current International Law. Professor Park approached the issue on the basis of the International law on Diplomatic and Consular Relations, and The agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).

Professor Mason Richey from the International Politics department at Hankuk University of Foreign Studies presented on two approaches on cybersecurity; one as a strategic competition issue, and the other as an intelligence issue. Cybersecurity as a strategic competition issue was analyzed with the concept of “cyber deterrence”. The international politics theory of cyber ganging and buck passing was applied to review the state’s behaviors and strategies. Professor Gibeom Kim from Korean National Police University presented on International cooperation and responses on cyber-crimes and Professor JoonKoo Yoo from the Center for International Law at the Korean national Diplomatic Academy introduced the issues of cybersecurity and its discussion at UN conferences. Last, Professor Beomsoo Kim, the executive director at Barun ICT Research Center at Yonsei University suggested the 4 principles for disclosure: responsibility, coordination, effectiveness and active participation. The workshop was attended by experts on several panels including Dr. Ramon Pacheco Pardo, the Chair of KF-VUB Korea, and Professor Hun-Yeong Kwon from Graduate School of Information Security at Korea University.

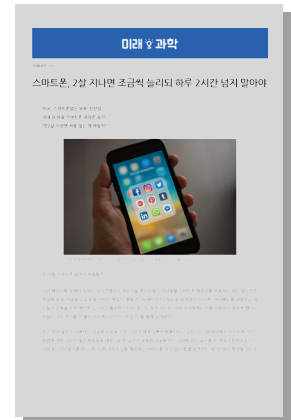


Time Spent using Smartphones Should be Steadily Increased after the Age of 2 and Should not Exceed 2 Hours a Day.

[Hankyoreh] 19.08.18


Recently, 'No-smartphones' childcare coaching is quickly spreading in the U.S. It is an expensive private education service that is targeting parents who would like to raise healthy children in the digital age. It teaches and trains children to use tools to play with as though smartphones were not an option. In terms of the status quo in Korea, Barun ICT Research Center at Yonsei University found that parents have are confused about best practices for children's smartphone usage. Parents think that smartphones could be used effectively for learning purposes, but the study shows extremely low levels of mobile learning utilization. In fact, parents give children a smartphone so as not to be distracted by kids or to calm down children according to the study. As Maryanne Wolf, an advocate for children and literacy and a neurologist, suggested that digital devices should be restricted to those under the age of 2. Also, for kids who are between the age of 2 and 3, parents should start letting kids use a smartphone from a few minutes to 30 minutes, not exceeding more than 2 hours per a day. 

Source : <http://www.hani.co.kr/arti/science/future/906174.html>



Barun ICT Research Center of Yonsei University Hosts the 8th Asia Privacy Bridge Forum

[Joonggang Ilbo] 19.09.05


The 8th Asia Privacy Bridge Forum was hosted by the Barun ICT Research Center of Yonsei University in Kim Soon-Jeon Hall on Yonsei's campus, focusing on the theme of "Human-centered and Trustworthy AI Technology". Along with the Ministry of the Interior and Safety and the Korea Internet & Security Agency (KISA), many privacy experts from Japan, Taiwan, India, and other Asian countries participated. During the first session, KISA's director Hyunjoon Kwon suggested Korea's personal information system is based on protection law and the information communications network act. At the second session Daewon Kim, a foreign policy executive from Kakao, showed willingness of the AI algorithm development that is based on Kakao's principle and value. At the third session, ethical AI for safe future was presented. During the fourth session, Beomsoo Kim, the director of Barun ICT Research Center at Yonsei discussed problems in international cooperation and relevant solutions to effectively respond to current or potential privacy issues in Asia. Later, all agreed to ratify the 'Cross-border Information Request/Collaboration Toolkit', particularly on countermeasures in the case of privacy breaches. 

Source: <https://news.joins.com/article/23571535>

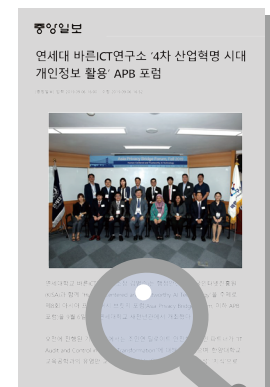


Barun ICT Research Center, Yonsei University, 'Utilization of Personal Data in the 4th Industrial Revolution'

[Joonggang Ilbo] 19.09.06

Barun ICT Research center at Yonsei University co-organized the 8th Asia Privacy Bridge Forum on September 6th with the theme, "Human-centered and Trustworthy AI Technology". It was hosted in partnership with the Information Systems Audit and Control Association Korea (ISACA Korea) at Yonsei's New Millennium Hall. On the second day, Min Youn Cho, a partner at Deloitte, and Yeong Mahn You, a professor at Hanyang University, started off the forum with presentations on the 'IT Audit and Control in Digital Transformation' and 'human intelligence exceeds AI'. In the afternoon, the APB Forum discussed privacy protection cases in Asian countries and the transfer and protection of personal information across borders through the Asia-Pacific Economic Cooperation (APEC) CBPR. Ouk Heo, a head of public policy of Facebook discussed Facebook's AI ethics and information protection system and Professor Sinta from Indonesia introduced new approaches for companies in Asia for effective information protection in the era of AI. Last, panel discussions took place led by Beomsoo Kim, the director of the Barun ICT Research Center, to generate a new roadmap for effective utilization of data and protection of personal information and privacy. 

Source: <https://news.joins.com/article/23572456>



From Digital Exclusion to Isolation

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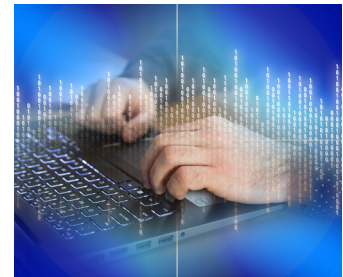


Image source: freepik

The old man is bored. Because he finds that he sleeps less now that he's old, his eyes open at 6 in the morning. The sun has not yet risen, so he tries to close his eyes again, but sleep has already left him. He thinks that he might as well make breakfast and goes to the kitchen. When he opens his rice cooker, he finds that there is still rice left over from the day before. He opens his fridge and pulls out kimchi and a few side dishes. He eats a small breakfast. It is still only 7. He decides to take a walk outside to help his digestion. Still, it is only 8.

When the old man returns home, he tries to pass the time by flipping through the channels on the TV. However, nothing catches his attention. Unlike before, he needed to understand the current trends and slang to understand the content. Even if he couldn't laugh with the audience, shouldn't he at least understand why they are laughing? Although his granddaughter had tried to explain, he couldn't possibly understand 'YOLO' when he only knew ABCD.

He not only finds the contents of the TV difficult, but he finds that TVs have become very difficult to operate. He wishes that there was only the power, volume, and channel buttons as before. Now, people use the internet and even shop through the TV. The old man finds it difficult to even turn it on. No matter how many times people explain, he immediately forgets, and resorts to leaving the TV on at all times.

The nation with the fastest internet, Korea. While other people enjoy comfort from the newfound technology, it does not apply to the old man. TV is not the only thing that has become complicated. To the old man, internet banking was too confusing and he did not know what a kiosk was. Unlike the old days, money was not available even though he had it; the old man was alienated.

According to the 2018 digital divide survey conducted by the National Information Society Agency, the digital information level of the elderly among the information

vulnerable was the lowest at 63.1% [1]. The digital marginalization of the elderly means that depending on the degree of technology utilization, they can be subject to economic, social, and cultural inequality. There is an urgent need to bridge this digital divide to prevent information and communication technology being used as a means of discriminating against a specific class.

The advent of fifth-generation mobile communications has opened doors to a high-speed, ultra-high capacity, ultra-low latency, and hyper-connected wireless network society. Once only seen in movies, medical teleconsultation, autonomous driving, and smart cities are becoming a reality, leading our society once again to transformation [2]. If the elderly are being isolated in the current digital society, the elderly will be totally alienated from the upcoming hyperconnected and super-intelligent one.

In the midst of change, real-life-oriented ICT education should be expanded so that the vulnerable are not isolated and alienated from digital technology. Recently, the Ministry of Science and ICT is pursuing an 'ICT for All' policy to minimize the digital inequality experienced by the information vulnerable. Experience-based training on smart phone usage, artificial intelligence (AI) and virtual reality (VR) technology are offered to senior citizens [3].

However, the elderly experience difficulty in using the internet or smartphones, so it is difficult to access information on relevant ICT education. It is necessary for local governments and private organizations to cooperate in providing practical education.

Source: [1] Kim, J. (2019, August 17). The Elderly Live in a Different World From Us. Retrieved from <http://www.mediatoday.co.kr/news/articleView.html?idxno=201819>

[2] Jeon, J. (2019, April 3). [5G Era] 5G Effects on Daily Life... Expect Industrial Innovation. Yonhap News. Retrieved from <https://www.yna.co.kr/view/AKR20190401123300017?input=1195m>

[3] Kim, C. (2019, June 17). "My Grandmother Uses Kiosk to Order Food". Retrieved from <https://gonggam.korea.kr/newsView.do?newsId=01JFTCWFQDGJM000>

Deepfake: Which Direction Can It Take?

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Image source: freepik

Recently, a report emerged the first fraud case using deepfake technology. Cyber criminals used deepfake technology to imitate the voice of a CEO, after which they transferred thousands of dollars to their account. The story is as follows. A CEO of an energy company received a call from the headquarters in Germany, asking for a money transfer. During the call, he did not suspect that the caller was a fraud because the intonation and vocal patterns of the fake voice were very similar to the original [1]. The use of deepfake technology enables not only voice manipulation but also image synthesis, raising concerns about misuse. What kind of technology is deepfake?

Deepfake, the combination of 'deep learning' and 'fake', is a technique for human voice and image synthesis based on artificial intelligence [2]. Deepfake allows users to easily and convincingly create voice or video of a person only through using high-quality videos or photos. After one AI creates a deepfake video, it is sent to be analyzed by another AI which detects whether the video is real. This is repeated until it is determined that the video is not fake, increasing the accuracy of the video [3].

In June, there was a commotion around a deepfake video featuring Facebook CEO Mark Zuckerberg. In the video, the fake Zuckerberg announced that there was "one man with total control of billions of people's stolen data." The video has resulted in the further loss of the credibility of Facebook, which was already suffering from personal information leakage issues [3]. With deepfake

videos of Hillary Clinton and Donald Trump being created and shared, it could possibly lead to impacting the United States presidential election.

Another way deepfake can be used maliciously is the creation of pornography. An app called Deepnude allowed users to upload photos of women and converted it to fake pornographic images. After the app became known through the media, its sale was discontinued due to the controversy. However, there are still similar cases of malicious use of deepfake occurring [4].

It is true that deepfake technology has an incredible ability to distinguish between original and fake images through AI learning. It can also generate images, which can be used in various fields such as medical image learning and diagnosis. However, because there is a high likelihood of being used in a malicious manner, deepfake image detection technology is also required [5], and wisdom is needed to make good use of its capabilities. 🤖

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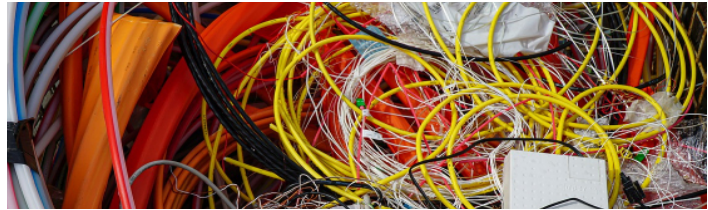


E-waste: The Grey Face of ICT

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Electronic waste or e-waste refers to the electrical and electronic equipment which are discarded by owners with no intention to use them again [1]. The world produces 50 million tons of e-waste (approximately weighing 4,500 Eiffel Towers) each year and if no intervention is made to check the growth of e-waste, it is expected to double more than 120 million tons by 2050 [2]. Of the total e-waste produced globally, only 20% of it is recycled and the rest either incinerated or dumped in landfills. Moreover, most of the e-waste is often manually handled by the world's poorest workers who are exposed to several health issues due to the toxic substances present in the discarded electronics [2].

The main reasons for the mass amalgamation of e-waste, or as the United Nations calls it, the "tsunami of e-waste" [2], are mass consumerism and planned obsolescence by the electronics manufacturers [3]. Both factors are closely related and have pushed the world towards a "throw-away society", in which intended excessive production of cheap and disposable goods provide incentives for the buyers to own many of the similar products [4]. Owning more than one phone or device, regardless of its utility, now showcases one's status in society, especially in developing countries where it is used for show-business among social groups [5]. Currently, there are over 8.97 billion mobile connections worldwide, which is higher than the current global population of 7.71 billion people [6].

This excessive ownership of multiple electronic devices complemented with reduced product life-cycles finally results in inadequate treatment or landfills full of hazardous e-waste. The primitive technique of burning electrical and electronic devices to obtain the precious metals like gold and copper often expose the poor people and children to the hazardous chemicals emitted from the combustion. Direct contact with harmful elements like lead, cadmium, chromium, PCBs, and other toxic fumes, as well as the accumulation of chemicals in soil, water and food are some of the ways in which e-waste harms human health and the natural environment [7]. As e-waste is different from regular waste, there is a need to recycle the e-waste under strict, specialized supervision. Several international organizations have proposed effective e-management strategies to tackle this pressing issue. Governments also need to mandate manufacturers on enhancing the products' life-cycle, pursuing circular loops in manufacturing and reducing the overall material and carbon footprints.

Consumers are the biggest stakeholders who need to become aware of this consumerism-driven market and follow responsible consumption patterns. As the whole world once stood-up against the plastic pollution and formulated sound policies for reducing the usage of plastic, e-waste should be considered with equal importance. It is not simply about efficient post-management of e-waste, but also the management of rare earth metals, energy, and other natural resources which are exploited to manufacture electronic devices. It is about maximizing the positive impacts of ICT on economic, social, and human development, as well as fostering green growth with due consideration to our natural world. 🌍

Source: [1] E-WASTE STATISTICS. (2018). E-WASTE STATISTICS guidelines on classification reporting and indicators. Retrieved from https://globalewaste.org/wp-content/uploads/2019/03/RZ_EWaste_Guidelines_SinglePages_X4.pdf

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Artificial Intelligence Situation in Latin America and its Impact on Labor

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Image source: freepik

While Latin America it is not at the forefront of artificial intelligence (AI) development, its effects are starting to be felt by some recent developments in the region. One noteworthy example is the first “Latin American Artificial Intelligence Community” [1] that was launched in November 2018 by a group of Chilean companies and developers. The IA-LATAM also published a study about the impact of AI on entrepreneurship in Latin America [2]. Findings show that most of the current investment in AI constitute seed capital related to the initial stage of AI usage with the development mainly oriented toward machine-learning in companies related to software & services, healthcare and media [3]. Another similar instance of improving ICT in the region is in Uruguay, where the state-operator, Antel, together with Nokia, has deployed a 5G network for commercial service [4].

Despite the fact that the effects of AI introduction are still in their seminal state, there is already research indicating the visible impact it has on working conditions in Latin America. An article about this issue highlights that AI is performed and analyzed almost exclusively in terms of economic growth and higher income, setting aside the essential character of labor as a socially constructed institution and as a creator of the social relations that makes human fulfillment possible [5]. On the contrary, the deployment of AI tends to undermine these functions and dehumanize human labor by limiting their social spaces. This quality of AI implementation is connected to the fact that it is not a neutral process, which can be expressed in two ways: 1) it is distributed dissimilarly between sectors which generates unequal sector dynamics, dissimilar productivity growth, and distributional gaps, and going further, 2) follows established interests that rarely have the public good as the primary objective (although arguably it may provide some long term benefit, albeit indirectly). This generates a polarization of employment, or a decrease in medium-qualified and medium-income. In this sense, the way in which AI is being developed is in accordance to the world tendency of income polarization.

An example of the low extreme jobs that are being created on a global scale are the so called “micro-jobs” [6]. In these jobs, workers generate information by transcribing texts and videos, cleaning databases, correcting and categorizing content; they mainly provide data to train the algorithms of AI systems, adding a human element to the information input that computers cannot obtain on their own. For example, they trace the contours of objects in a video that shows a car on a road and label them, teaching the driverless cars to avoid collision. Another characteristic of these micro-jobs is that they pay very little. While the risk of job security (possibly not even receiving any payment for the work) is already large, the problem is exacerbated by the fact that micro-job platforms are currently not regulated by any authority and can arbitrarily impose harmful working conditions. The International Labor Organization (ILO) has called for better regulations in this sector so that conditions such as minimum wage and greater transparency in payments are met. Despite such human welfare issues, some scholars assert that these kinds of jobs are a transitory step, a structural constituent, for the development of new technologies such as AI to advance and develop the labor force in ways humans cannot do [7].

Until now the majority of workers in micro-jobs were located in the United States and India. However, the living conditions that push people to take these precarious jobs are becoming more widespread in Latin America. While we cannot turn a blind eye to the new opportunities and advantages promised by AI development, we also cannot ignore the possible problems of AI on working conditions—this remains the future dilemma. 🌐



Source: [1] Miembros IA LATAM. (2019, September 19). Retrieved from <https://ia-latam.com/team/>
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ADAM, Malaysia's First Humanoid Robot

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This July, Sophia, the first social humanoid robot to gain a human citizenship in the world, was brought to visit Malaysia for the first time. She attended the Beyond Paradigm Summit 2019 in Kuala Lumpur to symbolize Malaysia's current focus on artificial intelligence (AI) for the Fourth Industrial Revolution [1]. Sophia awed the participants of the event with her appearance of wearing a baju kurung, the traditional costume of Malaysia. In addition to her diplomatic entrance, she also had an eight-minute conversation with the Malaysian Prime Minister Mahathir Mohamad, who had a very bright impression of Sophia.

For a developing country like Malaysia, the development of AI seemed to be far off future compared to that of developed countries. That was the main consensus most people thought and also one of the main reasons why Sophia's visit to Malaysia was such a big highlight this year. Contrary to popular belief, however, it was reported last July that Malaysia actually has its own first humanoid robot named ADAM, which had been activated since March 2019 by Robopreneur Sdn Bhd, a local robotics company. ADAM is powered by AI technology, using voice detection and recognition for its natural interaction capabilities with humans. It is said that the AI robot is still undergoing a design phase to make it look more like a human, such as having cover skin. "We hope by then the robot will have a Malaysian face. So, this robot will become the icon of Malaysia," Dr. Hanafiah Yussof, the CEO of Robopreneur Sdn Bhd, declared [2].

For a developing country, this seems to be an auspicious sign that indicates our growth and similar trajectory to developed countries. By having support from the government, it will be possible and easier for companies that have huge potential to success to enter the bigger industry of artificial intelligence. 🤖

Source: [1] Hasnan, L. (2019, July 22). Humanoid robots in Malaysia. THE ASEAN POST. Retrieved from <https://theaseanpost.com/article/humanoid-robots-malaysia>
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