

Barun ICT

6 June **ENG**
newsletter

Barun ICT Research Center conducts research on various ICT issues to explore socially desirable solutions.

Barun ICT Research Center aims to contribute to righteous and healthy IT environment
with a goal to be a world class research institute.

Barun ICT Upcoming Event

Asia Privacy Bridge (APB) Forum: Redressing Privacy Right Across Borders



A promotional poster for the Asia Privacy Bridge (APB) Forum. At the top left is the Barun ICT Research Center logo, and at the top right is the Yonsei University logo. The main title "Asia Privacy Bridge (APB) Forum" is in the center above a subtitle "Redressing Privacy Right Across Borders". Below the subtitle is a circular graphic containing icons of a smartphone, a shield, a key, a gear, a clock, a globe, a camera, and various communication symbols like email and messaging. At the bottom left, the date "Date 2017. 6. 26 (Mon) - 6. 28 (Wed)" and venue "Venue Yonsei Univ. Yonsei-Samsung Library 7F Chang Ki Won International conference hall" are listed. At the bottom right, there are logos for the host (Barun ICT Research Center), sponsor (KISA), and ISACA.

To celebrate the second anniversary of Barun ICT Research Center, the “Asia Privacy Bridge (APB) Forum: Redressing Privacy Right Across Borders” will be held on June 27 at the Chang Ki-Won International Conference Hall, Yonsei University.

International cooperation is necessary to effectively cope with privacy threats and crimes to trade personal information across borders.

The Asia Privacy Bridge (APB) forum was launched to promote intergovernmental cooperation in Asian economies to establish a global privacy protection policy. Experts from across Asia, including Japan and Singapore, who are specialists in personal information protection and privacy will attend to discuss ways to handle trans-border flows of personal information and collaborative ways to remedy these issues.

The New Government Must Pursue the Balanced Development of ICT and the Right Diffusion Method for ICT

- Barun ICT Research Center announced a policy proposal for the Fourth Industrial Revolution following the inauguration of the new government
- The proposal makes suggestions to reduce social anxiety, to efficiently utilize smart devices, to strengthen personal information protection, and to overcome the digital divide for the balanced development of ICT in the Fourth Industrial Revolution
- The proposal emphasizes the necessity of policy efforts to promote technological development and overcome jobs losses, social fears, and the side effects of ICT

As the Fourth Industrial Revolution is becoming a global issue, the reorganization of industrial structures and the creation of new business models are occurring rapidly through the integration of technology and industry. In Korea, the new government has emphasized its desire to lead the Fourth Industrial Revolution to boost national growth and has provided a quick response to related changes by setting up the Fourth Industrial Revolution Committee. However, preparing for the rapid transition to the Fourth Industrial Revolution era, the government must consider how to deal with social anxiety caused by job losses, the increasingly harmful effects of smart devices, the growing risk of personal information breaches, and socioeconomic problems such as the increasing disparities relating to information activities.

Social anxiety about job losses	Risk of smart devices
<ul style="list-style-type: none">• “The Future of Jobs Report (2016)” estimated a loss of 5.1 million jobs due to the Fourth Industrial Revolution.• Most job losses are involuntary, aggravating social anxiety and wealth inequality.	<ul style="list-style-type: none">• Smartphone overuse causes anxiety/agitation, the loss of work productivity, sleep disturbance, and digital isolation syndrome.• The growing number of VR and AR services are expected to increase safety problems such as vibration disorder, hearing loss, and injuries, as well as privacy violations.
Personal information abuse	Information disparities
<ul style="list-style-type: none">• The growing range of personally identifiable information due to the variety of information available for collection and big data analysis.• The expansion of digital personal information production and retention simplifies and speeds up trans-border flows of large quantities of data.	<ul style="list-style-type: none">• Introduction of new business models connected to ICT and increase in services using ICT.• Existing traditional methods vs. active use of ICT aggravates social disparities related to the digital divide.

Barun ICT Research Center, which has made various efforts to spread the right ICT methods, determined that there must be a discussion over the right way for our society to drive the Fourth Industrial Revolution and has proposed the following policy recommendations.

■ Overcoming social anxiety caused by the Fourth Industrial Revolution

Simply creating temporary jobs will not be enough to deal with the rapid social changes brought about by the Fourth Industrial Revolution. As demonstrated by the Luddite Movement in the past, social anxiety is likely to be aggravated by feelings of anger and loss caused by unemployment. Government policies that offer support are necessary. As unemployment occurs due to changes in social and economic structures, not individual problems, there must be government counseling programs, re-employment programs operated by companies, and national campaigns to shape social expectations and form a social consensus.

■ Encouraging the effective use of smart devices

Smart devices have become an everyday necessity. Users face difficulty in decreasing their dependence on these devices because of lack of self-awareness regarding overuse. In addition, dangers such as hacking, information leakage, blackmail photos, and phishing have been increasing. It is necessary for the government to form a social consensus of the right use of smart devices and to support and supervise “safe” development by related companies.

Therefore, the government should disseminate warning messages about overusing services and notices sharing the appropriate usage time for virtual reality (VR) contents; require a filter function to display only the desired information to deal with the overwhelming disclosure of information; develop a public campaign on the proper use of smart devices; and make efforts to recommend/support/supervise the best practices for development companies.

■ Enforcing policies for personal information and privacy protection

There have been efforts to understand not only the behavior of individuals, but also their emotions. As understanding individuals has become an important value, the need to manage personal information and privacy is also increasing. However, there must be more active responses and investments to management and changes in social perceptions. The damage caused by personal information leakage is not merely an issue for a single country, but is an international problem. Efforts are required by governments and businesses to curb this menace.

The Korean government should launch a public campaign that recognizes the importance of self-worth and information; hire and support information protection experts in government and affiliated organizations; strengthen the voluntary management of personal information by companies; and clarify its relationship with foreign countries for cooperative information protection.

■ Implementing policies to overcome the digital divide

With the development of ICT, it is expected that the integration of industries and the emergence of new services will increase information disparities between those who utilize ICT and those who do not.

The government should offer more smart device education for the marginalized, such as the disabled, the elderly, and multicultural families, and enhance the accessibility of mobile apps by enforcing regulations to create barrier-free contents and functions.

Using these methods, the government should develop policies to support new science and technology that will lead to the Fourth Industrial Revolution; design policies that address social changes; and deal with the side effects of technological development. Barun ICT Research Center anticipates that the new government will lead the way by making the “right” changes, rather than focusing on “rapid” changes, by minimizing the negative aspects of the Fourth Industrial Revolution and pursuing the balanced development of ICT. ☺

Barun ICT Activity

The 41st OECD SPDE (Security and Privacy in a Digital Economy) Meeting

The establishment of national privacy strategies and policies based on data to improve the environment for information protection



The meeting for the first half of 2017 was held at OECD headquarters in Paris, France, for three days from May 22, in conjunction with the Swiss Digital Risk and Insurance Workshop. The meeting, which was attended by over 70 people from 34 OECD member countries, EU, BIAC the Business and Industrial Advisory Committee, CSISAC the Civil Society Information Society Advisory Council, and ITAC the Internet Technical Advisory Committee. At this meeting, data governance, digital risk insurance, digital security and risk management for medium-sized businesses, and national privacy strategies were discussed. The need for horizontal cooperation among organizations within the OECD, as well as active cooperation with institutions such as APEC Asia-Pacific Economic Cooperation, ICDPPC, and the EU, was emphasized.

Beomsoo Kim, Director of Yonsei University Barun ICT Research Center, attended the meeting as OECD SPDE vice-chairperson and the Korean representative. He emphasized the analysis and diversification of data collection because there are limitations such as the international utilization and diffusion of the analysis using the digital risk insurance evaluation model based on US data. In addition, there were discussions on specific methodologies, such as methods for data collection, analysis, and drawing implications on the global state of IT and policy data to strengthen data-based policy decisions. On May 26, representatives from Korea and Japan attended a meeting to discuss the importance and method of cooperation between the two countries. ☺

The 7th International Audit Research Seminar

The importance of developing and introducing an IT system that considers information protection and user appraisals and attitudes:

The role and tasks of an electronic audit management system for increasing audit capacity

The 7th International Audit Research Seminar was held on May 24 at Fraser Place Central Seoul Hotel. The topic was "Audit Management Systems for Ensuring Audit Capabilities: Challenges, Opportunities, and Solutions."

Since 2005, the Board of Audit and Inspection has been working to improve the transparency, reliability, and effectiveness of public service activities and policies

through auditing systems and techniques such as accounting audits, performance audits, and job inspection. It has also held international seminars on audit systems. **Chan-Yun Hwang**, the chairman of the Board of Audit and Inspection, **Byung-Ryul Lee**, Director of the Board of Audit and Inspection, as well as auditing experts and senior officials from various countries including the USA, Brazil, India, Hungary, and Georgia, attended this event.

Beomsoo Kim, the director of Yonsei University Barun ICT Research Center, attended the roundtable discussion at this seminar as a keynote speaker and presented two core issues in developing IT systems for auditing support.

First, to maintain the trust in and transparency of the audit support system, even though it may entail higher costs and manpower requirements, a consideration of information security is required from the analysis stage of system development. This can be done by incorporating the maxim "Security by design, security by default, secure software engineering." Experts from various countries were asked

about the current efforts being devoted to this.

Second, Director Kim explained that research results should not only emphasize the interests of CEOs and managers, but also the effects of system users' attitudes, desires, feelings, surrounding pressures, resource compatibility, relative excellence, and perceived complexities. For stable and effective utilization of a system, the importance of persuasion and improvement based on research on users' perspectives, as well as relevant improvements, must be emphasized. ☺

International Labor Organization Global Dialogue

The Future of Work We Want



On April 6–7, "The Future of Work We Want: Global Dialogue," hosted by the International Labor Organization (ILO), was held at the ILO's headquarters in Geneva, Switzerland. At this meeting, professionals from the labor market, including CEOs of multinational corporations, and representatives of unemployed people in their 20s and 30s came together to discuss specific solutions from various angles.

Professor **Robert Skidelsky** of Russia, who presented at the opening session, noted that the question of whether humans had to work arose because of the recent automation threat to human jobs. He shared that once we accept that automation will reduce the jobs available to humans, we will first need to decide if we want to work less and produce the same thing, or work as we do now (or even more) to produce more results, and mentioned the need for institutional reforms as technology develops.

The experts attending the conference recognized that various employment problems that are currently occurring in various countries are system failures due to technological development. In other words, the current

employment problem is not merely a supply and demand imbalance in the labor market, but rather a shift in the long-term balance of labor. This involves, for example, changes in production methods due to technological development and changes in resource procurement methods. Therefore, the existing employment problem arose because past employment contracts for effective production are no longer valid. Future problems could be mitigated through the establishment of appropriate systems and relevant laws for effective production.

The experts stressed the need to revise and adapt existing systems and practices that are no longer in line with the purpose and direction of human lives. They need to meet the working conditions required by the new technological environment. This should be accomplished through a social consensus that all members can accept, rather than through unilateral demands or sacrifices. To achieve this, active research by experts from various fields is needed. The development of ICT technology is expected to support these tasks effectively. The future of employment depends on our choices and will be strengthened by our efforts toward and enthusiasm about making the right decision. ☺

Jisun Lim

Barun ICT Research Center, Yonsei University

Dream Lecture: My Dream to Protect the World for the Future



At Hyewon Girl's Middle School

On May 1, **Beomsoo Kim**, Director of the Barun ICT Research Center at Yonsei University, visited Hyewon Girls' Middle School in Jungnang-gu, Seoul to promote righteous ICT awareness and teach preventative measures. He began by asking the 200 students attending the lecture: "Are your SNS accounts safe?"

He then shared various cases of personal information violations on SNS and explained how teenagers should use SNS.



There have been issues such as the "cancellation of university entrance through identity theft," "incidents where personal photos are used for illegal activities by others," and "phishing" cases. Against these recent threats, including ransomware, practical preventative measures for online information protection, including backing up data, were explained. In addition, issues with SNS that teenagers could relate to, such as "Kakao Talk jail" and "the use of profanities online," were brought up. Students were warned about how these activities may involve serious crimes. Ten commandments for preventing cyberbullying and five countermeasures for cyberbullying were introduced to the students.



Lastly, Director Kim offered directions for Korean youth to prepare for the future in relation to the Fourth Industrial Revolution.

First was "**adapt and change.**" As the market, technology, and culture change, a person must adapt and change quickly.

Second was "**go against the flow.**" By not going the same way that others go, one can beat a new path.

And third was "**choose danger.**" One must not hesitate when faced with a dangerous path and maintain the confidence to go on.

Director Kim ended the lecture by sharing that he wanted the Korean youth to enter various fields and design the future by following these three principles of the Fourth Industrial Revolution. ☀️

PC/Mobile Platform Usage Behavior: Demographic Data Analysis

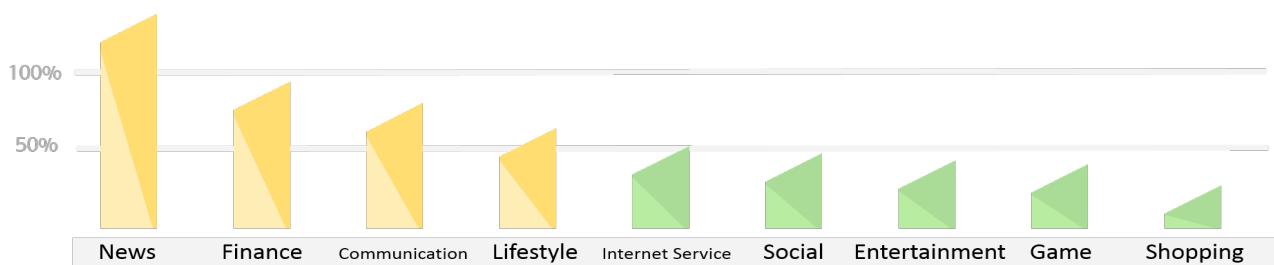
Jisun Lim, Goonyong Park
Barun ICT Research Center, Yonsei Univ.

The following analysis was conducted by Yonsei University Barun ICT Research Center based on dataset from external research institute. The analysis period was from June 26, 2016 to October 26, 2016 (14 weeks), and utilized weekly smartphone usage statistics and demographic information of 6090 participants over the age of 7 nationwide.

'Smart' Senior Citizens: The Use of Mobile Banking by Korea's Older Generation

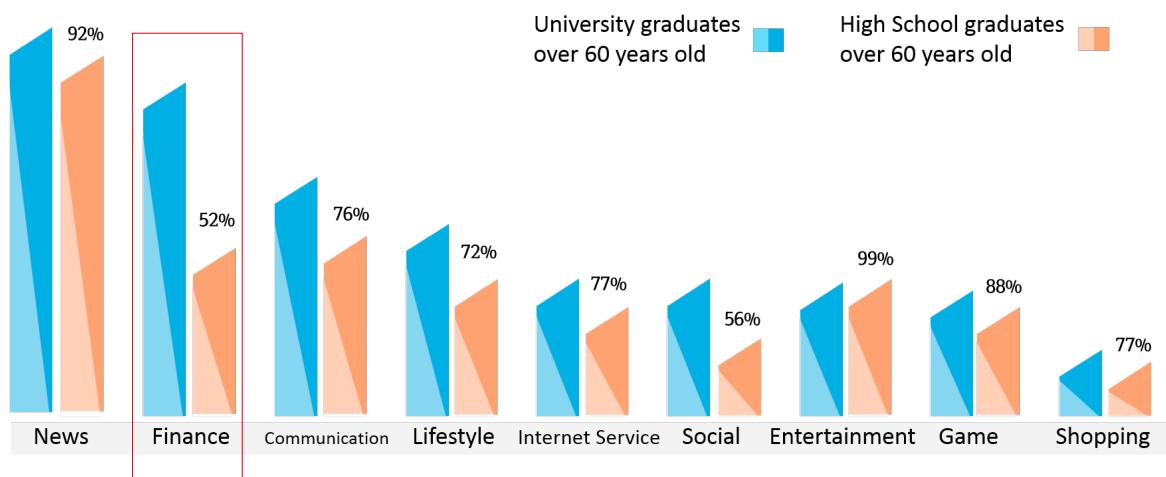
- Low smartphone usage time among the older generation due to the low use of leisure-related apps
- Higher use of financial apps than other age groups
- However, there are gaps in smartphone usage according to educational background

Average usage time (18.8 hours) per week for those aged 60 or older was 63% lower than that of other age groups (30.1 hours). Divided by category, the usage time for news (139%) was higher than that of other age groups, while usage times for finance (94%) and communication (80%) were similar to or slightly less than other age groups. On the other hand, the use of leisure-related apps such as online shopping (24%), games (45%), and entertainment (52%) was significantly lower for the older generation. This suggests that smartphone usage time may vary due to structural differences regarding preferred app categories, rather than deteriorating cognitive abilities.



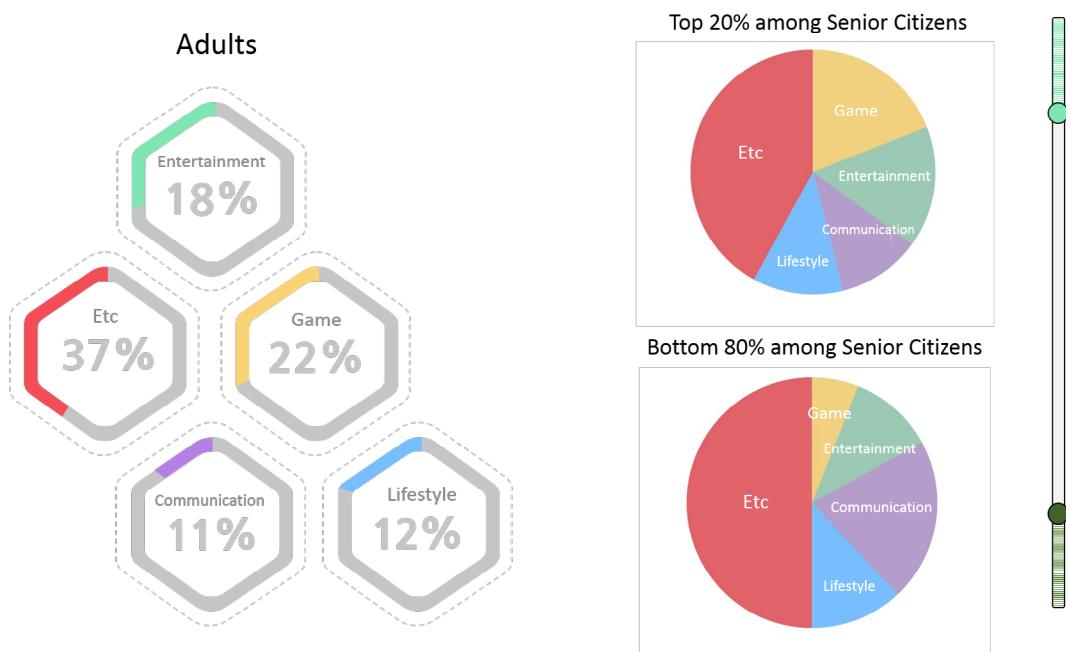
[Figure 1] Percentage of time spent on each category compared to younger age groups

Among senior citizens, there was a remarkable difference in smartphone usage time and methods according to educational background. For other age groups, there were no significant differences in smartphone usage time based on educational background (27.4 hours for those without a high school diploma, 29.5 hours for those with an undergraduate degree or higher). However, there was a significant difference among people over 60 (16.8 hours for those without a high school diploma, 21.1 hours for those with an undergraduate degree or higher). Finance apps, which are comparatively difficult to use, showed the greatest difference in usage time according to educational background.



[Figure 2] Comparison of mobile app use time among senior citizens according to education level

On the other hand, the risk of smartphone addiction among the elderly was relatively low compared to other age groups. Senior citizens in the top 20% for usage time were classified as high risk for smartphone overuse, but they still had a very low average weekly usage time (41.8 hours) compared to other age groups (59.8 hours), and their usage patterns were more dispersed across categories. Specifically, the top 20% of senior citizens spent more time on games (6% → 19%) and entertainment (11% → 16%) than the bottom 80%, but less time on communication (21% → 11%). However, smartphone addiction was very rare among senior citizens since the proportion of hours for each app category was similar to or lower than that of all users in other age groups (games: 22%, entertainment: 18%).



[Figure 3] Comparison of smartphone usage patterns between senior citizens in the top 20% and bottom 80% for usage time

As a result, it was found that although smartphone usage time is low among persons over the age of 60, the devices are still being utilized well for various purposes. This is because lower usage time among senior citizens is not due to differences in cognitive or learning abilities, but is related to the increase in external activities among this group. The danger of smartphone addiction for the high-risk group was also very low compared to other age groups.

On the other hand, among the older generation, the gap in smartphone usage according to educational background was more significant than other generations. The use of smartphones by senior citizens brings up the following policy implications. First, smartphone education requires a selective focus on specific user groups. Second, the development of customized technology that caters to age-related physical debility is needed. And third, smartphone usage by the older population should focus on non-addictive use and accessibility, rather than education. ☺

Big Data Meets People and Business-HR Analytics

Sunju Kim

Barun ICT Research Center, Yonsei University

Inappropriate recruitment of a company has an negative impact on organizational culture as well as benefit. \$50,000 USD is how much a single bad hire can cost a company, according to a 2012 Career Builder survey. The responses were collected online from 400 to 2,611 HR professionals from ten countries. The survey showed concerns regarding bad hire, including negative impacts on productivity, employee morale, client relations, sales, and training cost. A more conservative number, according to a 30-case-based Center for American Progress report, is 20% of the annual salary, which represented the cost associated with leaving of an employee in most workplaces. This may increase up to 213%, however, if the position requires specific skills. Examples would be a c-suite level executive or a physician. Even one-fifth of the annual salary suggested in the report is a considerable expenditure, implying the significance of lasting, quality hire.

A good management of human resources may start with data-based recruiting. Use of data analytics in recruiting brings together quantitative measures with traditional, quality-focused hiring criteria. Hiring managers may decide which factors to focus on in recruiting after HR data analysis. In call centers of Xerox Corp., for instance, previous relevant experience turned out to be less important in retention compared to one's personality. Tenure from previous job, similarly, turned out to have little correlation with job performance. Integrating these findings from data analytics can contribute to desired recruiting outcome.

One successful example of big data integration in HR is of Sysco. Sysco's delivery sector, which plays a significant role in customer relationship, saved nearly \$50 million and kept 20% more employees with HR analytics. Sysco concluded divisions with highly satisfied employees showed better retention rate, higher revenues, lower costs, and more customer satisfaction.

Despite the increasing awareness for HR analytics, Korean corporations are yet to fully adopt big data in human resource management, says IT Chosun's Jinsang Yoo. It is noted Korean HR decisions depend highly on evaluation of individual responsible officers; and the data size is substandard with unreliable amount of evaluation and survey results available. The two points are crucial preconditions in HR analytics, stated in IBM's workforce analytics study. The eight preconditions in the research included culture, data and technology, analytics roles and capabilities, data security and privacy, internal client management, organization, success metrics, and alliances.

The good news is that big data driven HR management is growing. The growth is led by supersize Korean corporations including Doosan and LG. Big data HR solution services are increasingly employed, even though the speed of growth may be slower than in other cultures. Data driven HR management in Korea draws attention, as is expected to improve industry productivity, corporate performance, and employee happiness. 

WannaCry, a Ransomware that Induces Crying

Soomin Son

Barun ICT Research Center, Yonsei University

On May 12, the WannaCry ransomware infected more than 300,000 computers across 150 countries.

▲ What is the pathway for infection?

WannaCry uses the SMB [Server Message Block](#) remote arbitrary code execution of the Microsoft Windows operating system to spread a malicious code and then scans the accessible IPs from the PC or server and spreads through the network. Once infected with WannaCry ransomware, multiple files (doc, ppt, hwp, etc.) are encrypted and the desktop is changed after the extension changes to .WNCRY or .WNCRYT.

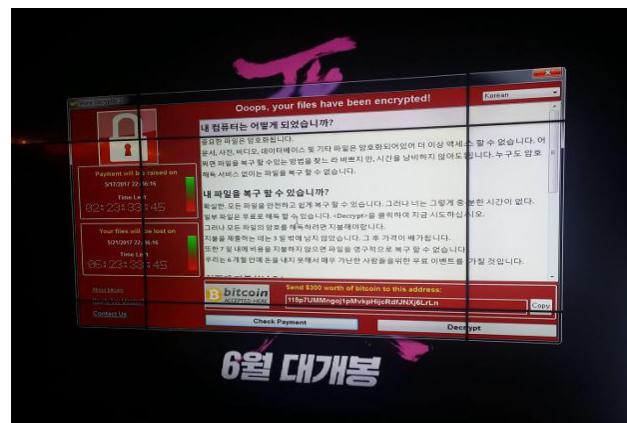
▲ How is WannaCry different from other ransomware?

While other ransomware infect computers via malicious attachments or through exposure to vulnerable websites or banners, computers may be infected by WannaCry even if just one of the systems on the network becomes infected. This has detrimental consequences because it can scan the network and access other systems to exploit the vulnerability of MS17-010. It is a combination of a new worm virus and ransomware. WannaCry supports several languages, including Korean. It costs \$300 or bitcoins of varying amounts (depending on the variant) to decrypt the encrypted data.

▲ How severe is the damage?

Railway control systems and automobile production lines have been shut down, and patient treatment at hospitals has been disrupted as major corporations around the world have been attacked, including Spanish telecom company Telefónica, Japan's Nissan, France's Renault, German railway company Deutsche Bahn, and the British National Health Service. Severe damage has occurred in an instant. In Korea, CGV's advertising screening system

was infected, exposing threatening messages to the public, and the computer systems of numerous general hospitals were infected, complicating patient management.



▲ Who is responsible?

WannaCry is allegedly based on hacking tools developed by the US National Security Agency (NSA). The NSA used vulnerabilities in Microsoft's operating system to infect thousands of computers connected through a network. It was later alleged that the hacking group "Shadow Broker" hacked and infiltrated the NSA, which caused this incident.

▲ Recovery method

New variants of WannaCry are constantly being discovered. As there may be mild variants, the latest MS Windows security patch must be applied. For more information, refer to KISA [the Korea Internet & Security Agency](#)'s "Countermeasures to prevent ransomware from exploiting the vulnerability of SMB" (https://www.rancert.com/bbs/bbs.php?bbs_id=notice&mode=view&id=61). ☕

Contrasts in the Digital Business Environment

Kwanghyun Kim

Business School, Korea University

In modern society, people exist in a digital work environment where they can work anytime, anywhere, on any device. There have been many studies on the impact of the digital work environment. This environment was not initially intended to enable flexible working conditions but rather to reduce costs from rising land prices. However, due to positive effects such as increased work commitment, productivity, efficiency, and transparency, many companies have been promoting the digitization of the work environment. For example, Some companies have an open and collaborative network that supports information sharing and enables employees to develop their own careers and learn.

But does the digital work environment only have positive effects? In fact, some issues have been identified, including concentration disruption, information and communication overload, invasion of one's private life, digital alienation, and the digital divide. In particular, "**cyberloafing**," which refers to the act of using the Internet for personal use during office hours, has become a problem.

Professor Kim conducted research on how the perception of organizational fairness and **empowerment**, and employees' personality traits, such as **conscientiousness** and **neuroticism**, influence cyberloafing. According to Professor Kim's research, cyberloafing increased with an increase in employee empowerment, and decreased with a high level of conscientiousness and low level of neuroticism. In other words, the more convinced they were that they had the power and authority to do important tasks for the organization, the more likely employees were to spend their time on the Internet. In addition, the results showed



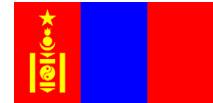
that highly conscientiousness and unneurotic employees were less likely to cyberloaf.

Companies are testing various policies to improve employees' job satisfaction and performance in the digital work environment. Google now has a system that allows its employees to spend 20% of their work hours doing whatever work they want. However, Marissa Mayer, who left Google to become the CEO of Yahoo!, shared that this policy does not actually exist. She explained that it is really a 120% policy, as employees are expected to finish 100% of their work and then do 20% extra.

How can individuals and organizations be happy in a rapidly changing work environment? There must be further research to find the answer to this question. 



“Blue Whale” Game Responsible for Dozens of Suicides in Russia?



Nyamdulam Badam

The 1st International Student Ambassador
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The Blue Whale Challenge, also known as the **Blue Whale suicide game**, is an online game in which participants are purportedly assigned a curator who provides various acts of self-harm to be committed over the course of 50 days. Initial tasks include self-harm, watching horror movies, and waking up at unusual hours, but they gradually get more extreme. On the final day, participants are urged to win the game by committing suicide. While over 100 teen suicides have reportedly been linked to the game, no direct evidence has been found.

In Russia, two schoolgirls, aged 15 and 16, fell to their deaths from a 14-story apartment building; another, aged 15, fell from a fifth-floor apartment, while a 14-year-old girl died after being hit by a train earlier this year. One of the girls, Yulia Konstantinova, 15, left a note on social media saying “*end*” shortly after posting a picture of a blue whale, while her friend Veronika Volkova, 16, wrote “*Sense is lost... End*” before she took her own life.

Last year, the alleged ringleader, 21-year-old Philipp Budeikin, was detained. He has been charged with organizing eight groups between 2013 and 2016 that “promote suicide.” Budeikin told the Russian press his victims were “biological waste” and he was “cleansing society.” BBC journalists in Russia say Budeikin had previously insisted he was innocent, had no evil plan, and was just having fun. Recently, during a court hearing, he pleaded guilty.

Instagram has recently started showing users a warning when they search for pictures related to Blue Whale. When you search for the term on the network, a notification appears that reads: “Posts with words or tags you’re searching for often encourage behavior that can cause harm and even lead to death. If you’re going through something difficult, we’d like to help.” But directly underneath the post it gives the option to “see posts anyway.” There are several shocking pictures of self-harm and even jokes about the sick game once you click through. Some include pools of blood on the floor, while others appear to show a whale carved onto an arm.

The NSPCC National Society for the Prevention of Cruelty to Children says that children should remember not to follow the crowd and not feel pressured into doing anything that makes them feel unsafe. A spokesperson said: “Children can find it difficult to stand up to peer pressure but they must know it’s perfectly okay to refuse to take part in crazes that make them feel unsafe or scared. Parents should talk with their children and emphasize that they can make their own choices and discuss how to say no. Reassuring a child that they can still be accepted even if they don’t go along with the crowd will help stop them doing something that could hurt them or make them uncomfortable.” The UK police have warned parents that their teenage children may be taking part.

[Source]

- <https://www.thesun.co.uk/news/worldnews/3003805/blue-whale-suicide-game-online-victims/>
- <http://news.gogo.mn/r/207121> - mongolian news

Automation: Opportunity or Threat?



Jeremy Li

The 3rd International Student Ambassador
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According to a McKinsey survey, 50% of French jobs could be automated by 2020. Currently, 1.2 billion full-time jobs in total are automated using current technologies, and machines will replace more and more workers in the near future.

Three analysts from the McKinsey Institute have sought to figure out the percentage of jobs that could be automated, depending on the particularities of national economies. Their studies mainly focused on some 50 countries, which represent 80% of the global labor force. On April 12th, the results of their research were published in the Harvard Business Review. According to the results, the potential of automation varies from 40% to 55%, depending on the country. Japan has the highest rate with 55.7%, and South Africa the lowest with 41%. However, the gain in productivity will be equal to the work of 1.1 to 2.2 billion workers replaced by the robots across the major global economies (G19 + Nigeria) by 2065. The authors have also calculated the impact of this new workforce on the global economy. By assuming that workers who have been replaced by machines will join the labor force and remain as productive as they were in 2014, the global growth would be improved by automation, with a GDP growth of 0.8 to 1.4% annually.

The McKinsey analysts have distinguished three profiles of countries faced with automation. First, advanced economies Australia, Canada, France, Germany, Italy, Japan, South Korea, the United Kingdom, and the United States that are facing aging populations will profit from the productivity brought by automation, helping them to reach their economic growth objectives. Second, emerging countries with an aging population Argentina, Brazil, China, and Russia will be

able to use automation to maintain their current growth. Finally, the third profile is emerging countries with a young population India, Indonesia, Mexico, Nigeria, Saudi Arabia, South Africa, and Turkey. In their case, automation alone will not be sufficient to ensure the desired growth. They also need to improve their work productivity.

Furthermore, the pace of automation's adoption will vary from one country to another. The technical feasibility, job mix (industries versus services), and level of social acceptance are just some criteria. The authors strongly emphasized the economic ability of the US to take on this new project. As a matter of fact, some hardware solutions require a significant expenditure and could be adopted faster in advanced economies than emerging ones where the salary level remains low. However, software solutions could be deployed quickly around the world, especially through the cloud, which can reduce differences in timing between countries.

In 2016, a report presented at **the Davos World Economic Forum** mentioned that new technologies, including artificial intelligence, could destroy 7.1 million jobs and create 2 million, representing a loss of 5.1 million jobs by 2020. In order to counter the social cost of this threat, Benoit Hamon, a French socialist candidate, suggested a new tax on robots during the last French presidential election campaign. **In France**, the potential of automation remains low compared to other countries due to the French industrial sector, which has gradually declined in recent years. According to the study, 43.1% of French jobs could be affected by automation by the second half of the twenty-first century, 2% more than South Africa, which had the lowest figure.



How Do Children View Digital Tracking?



Laurel Maelynn Alley

The 1st International Student Ambassador
Graduate School of International Studies, Yonsei University

In the twenty-first century, children are more connected to the digital world than ever before. A growing number of children own mobile devices. Internet-connected toys are wildly popular. Some even own personal social media accounts and post selfies. But how do they view digital privacy and tracking?

A recent study by the University of Michigan indicates that children often do not see the negative consequences of tracking someone else's belongings. The study investigated what over 300 children aged 4–10 and adults thought of someone using a mobile GPS device to track items that did and did not belong to them. The majority of adults had negative responses, pointing out potential consequences of tracking such as stealing, the violation of moral principles, and feelings of discomfort with the situation. In a striking contrast, the children generally did not express the same negativity as the adults and were positive about people tracking another's possession. Surprisingly, the children were more negative about someone having a tracking device and not using it than someone having one and using it.

On a more positive note, the study implied that children may be realizing the negative consequences earlier, as some of the children above six could give reasons why tracking someone else's items was less acceptable than their own. However, overall, children were shown to

be more positive and accepting of digital tracking than adults, even if it was not the person's own possession.

These findings are a concern, as the number of children and teenagers using digital devices and social media continues to grow. A 2015 Pew Research Center survey found that 92% of teens aged 13–17 reported going online daily, with a quarter being online almost constantly. Nearly three-quarters of the teens had access to a smart phone, and social media was widely used. A total of 71% of teens used Facebook, 51% Instagram, and 41% Snapchat, with other popular services including Twitter, Google+, Vine, and Tumblr. The top three social media platforms all allow teens to post pictures and/or updates. Many social media platforms store information, and children may be unaware of just how much information they are revealing online.

With the increase in children and teens online and growing use of digital tracking and data collection, we must take care to not just protect children, but also to educate them about potential digital dangers. 

◀ [Source]

- <http://www.novethic.fr/empreinte-sociale/conditions-de-travail/isr-rse/43-1-des-emplois-en-france-pourraient-etre-automatises-144405.html>

▲ [Source]

- Wadley, Jared. "Young Children Unconcerned about Digital Tracking by Strangers." University of Michigan. May 8, 2017. <http://ns.umich.edu/new/releases/24815-young-children-unconcerned-about-digital-tracking-by-strangers>.
- Lenhart, Amanda. "Teens, Social Media & Technology Overview 2015." Pew Research Center. April 09, 2015. <http://www.pewinternet.org/2015/04/09/teens-social-media-technology-2015/>.

Britain's Conservative Party Proposes Creative Policy Regarding Social Media Information Storage

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The campaign to re-elect **Theresa May** in Britain has suggested a creative new Internet policy that would allow social media users to force Internet companies to delete all content, including text, videos, and pictures that they voluntarily put online before they were 18 years old. Further, companies that do not work to actively protect children and reform their business model will be subjected to fines.

As part of this suggested policy, people will be able to have specific content deleted permanently without having to completely and totally delete the social media account itself. At present, deleting the entire account and starting with a new one is the only way to delete all personal information.

[Source]

- Rowena Mason, "Conservatives pledge to give web users power to erase online history," The Guardian, March 12, 2017.

The policy follows a general trend of giving Internet companies the burden to protect children. It will be their responsibility to limit or restrict harmful content. Applications designed specifically to do this would be one method of accomplishing this goal. Social media companies will also have to respond to complaints of violent or inappropriate content much more quickly and remove the offending material. Fines for not responding fast enough could be implemented.

Another ICT policy suggested by the party is the "freedom to be connected to low cost and fast broadband connections, wherever you live in the country, with transparent pricing, easy switching and an entitlement to redress when companies are not delivering."

There have been criticisms of the proposed policy. Some have suggested it is being used simply to win the votes of parents, and others have noted that similar ideas have been suggested before but never put into practice. This creative new Internet policy is one of several that the Conservative Party is running on for re-election that focus on large industries. Others include proposals for a cap on energy prices and reforming the pension system. ☺

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