

# Barun ICT

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*newsletter* ENG

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.

## Strengthening AI, SW, and Big Data: The Engines of Future Growth

On February 1, Yonsei University's nineteenth president, Seoung Hwan Suh, took office. In his inaugural address, President Suh started with the message, "Universities have to understand current societal trends to fulfill its duties." He emphasized that we face explosive development of science and technology surpassing the biological limits of humans, creating a new civilization, and a 'tipping point' of no return from climate change and environmental destruction that would irreversibly deteriorate human life. Through his inaugural address, President Suh proposed a way forward for Yonsei University during these social circumstances.



President Suh stated that "we have to overcome the challenges in front of us and bring forth a new Yonsei". He also promised to concentrate efforts on raising 'innovative leaders with a sense of community.' Regarding the field of education, he underscored the value of "sharing" in order to "promote the sense of community among students through the International Campus' RC Education, and utilize the surrounding high-tech environment to raise innovative leaders" for the Fourth Industrial Revolution.

Moreover, he stated his plans to "pay attention to the revolution of learning methods and media." He also stated that "the Y-EdNet, Yonsei University's innovative online lecture platform, will be built in advance to fully educate students using virtual spaces and communicate with education users around the world." In addition, he proposed the expansion of inviting foreign students, the creation of graduate school knowledge and research support, and reformation of the governance system.

In particular, to work towards a practical, research-oriented university of the future society, he emphasized the strategic strengthening of fields related to AI, SW, and big data that would support knowledge creation and research of graduate schools. President Suh even declared his ambition for a 100 billion won, large-scale university industry cooperation in order to facilitate organic, information networking amongst researchers and effectively conduct collaborative research projects. 🌐

## Seoul Women's University's Establishment of <Barun AI Research Center>

In January 2020, Seoul Women's University established Barun AI Research Center as a specific research institute with the objective of exploring the correct usage of artificial intelligence from an ethical and security perspective. Professor Myung-Joo Kim (Chair of the Department of Information Security at Seoul Women's University), the first head of the center, plans to form strategic partnerships with Yonsei University's Barun ICT Research Center and conduct joint research in many directions. 🌐

\* This article is contributed by Barun ICT Research Center to SKT Insight

## Old Habits Die Hard. Healthy Media Use for Toddlers

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"My child is only 17-months-old... but loves watching YouTube on my smartphone. He chooses what to watch and even knows how to skip commercials. I know this isn't good for him but what should I do?"

On mom's online community websites, you can easily find similar concerns about children's smartphone usage. When smartphones were first introduced, there were parents who mistook their own kids for being geniuses who seemed to already know how to use them. However, along with increased awareness of smartphone addiction and dependency, more and more parents are endeavoring to create healthy media usage habits for their children.

Since 2015, SKT has supported academic programs for the spread of healthy ICT culture through Yonsei University's Barun ICT Research Center. Since 2018, it has focused on the usage of smartphones by "toddlers" and contributed to academic research and policy direction for healthy media usage habits.

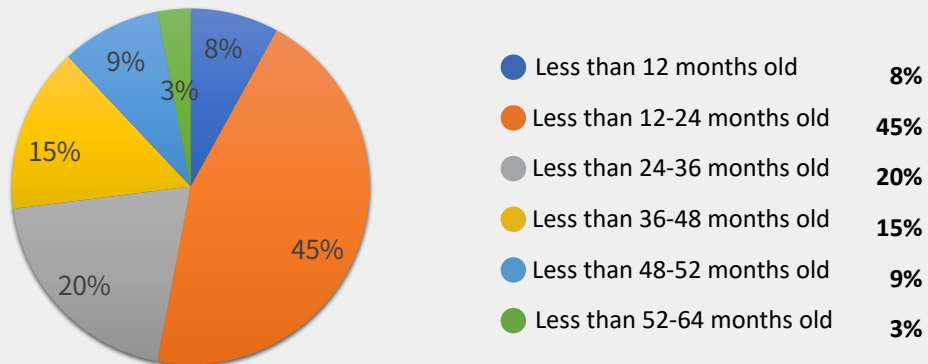
### **When should my child start using smartphones?**

In restaurants, cafes, and other public spaces, everyone has smartphones in their hands regardless of gender or age. Even young toddlers aged from 1 to 2 have their eyes focused on the small screen of smartphones, rather than looking at the real world surrounding them. According to the Barun ICT Research Center's survey on toddlers' and preschoolers' smartphones usage (conducted between October 17th and 24th, 2018), among 602 parents who responded, 59.3 percent of them, whose children aged from 12 months to 6-years-old, answered that their child was using smartphones. Among them, 45.1 percent replied they first exposed their child to smartphones between the age of 12 to 24 months. Unfortunately, the age of children's first exposure to smartphones is getting younger.

This situation is not limited to South Korea. Common Sense Media, based in the U.S., and Internet Matters in Britain are nonprofit organizations who provide materials abetting children's healthy media use habits. Recently, the World Health Organization (WHO) also issued guidelines for adequate sleeping hours of children under the age of five to ensure healthy growth.

The WHO has defined "Sedentary Screen Time" as the time used as passive entertainment consumed via televisions, computers, and mobile devices. Children younger than 2 were recommended to avoid any at all. Those between 2 and 4 should be exposed to sedentary screen time as little as possible, while the total time should not exceed more than an hour per day. This guideline asserts that increasing children's physical activities, reducing sedentary screen time, and ensuring a high quality of sleep would result in improved physical and mental health of children.

## Fist Time Toddlers Use Smartphones



### How should my child be using smartphones?

Many adults remember when phones, MP3 players, cameras, computers, game consoles, and navigation all existed separately. However today most toddlers only know the multi-functionable “smartphone”. Adults can use smart media to find information, communicate, or listen to music, depending on the situation. Of course, even adults cannot easily resist the temptation of smartphones. Considering how pervasive they are, how are infants and children currently using smartphones?

According to a survey conducted by the Barun ICT Research Center, 82.1% of toddlers mostly use smartphones to access video platforms such as YouTube and YT Kids. Through such platforms, children watch videos introducing toys and playing activities (43.3%), watching animations and comics (31.7%), and singing and dancing (23.6%). Most of the purposes of smart media were for entertainment rather than education.

### If not avoidable, then wisely!

We cannot deny the usefulness that smartphones add to our lives. Our children also live in environments where they have no choice but to use digital devices. So, instead of merely connecting smartphones with YouTube or games, why not use it as a tool for finding information or a device for storytelling?

It is important for parents to show children that they too can put their smartphones down and encourage healthy media use habits. Changing the perspectives on the usage of smartphones can ultimately change the behavior, habits, relationships, and eventually the lives of our children. 🧑🏫

## BARUN ICT News



### Executive Director of Barun ICT Research Center, Beomsoo Kim, Elected as Dean of Yonsei Graduate School of Information

Beomsoo Kim has been appointed as Dean of Yonsei Graduate School of Information. In addition to being the executive director of the Barun ICT Research Center, Director Kim is also vice chair of the OECD DGP (Data Governance and Privacy), and chair of the Asia Privacy Bridge Forum. 🧑🏫

## AI Technology Strategies in China



Drone companies such as DJI, Baidu, Alibaba, and Tencent are leading the global market, affecting economies worldwide including China's. These companies all use AI technology to craft their business model. Although many think of the United States and Japan as the leading countries in AI technology, by far the results show that the country that is connected to that market the most is China. How is China making a successful connection between AI technology and business? To answer this question, a research seminar was held on February 10th at Yonsei University's Millennium Hall.

Professor Younghoon Jang of Beijing Institute of Technology, with the seminar title "China's AI Technology & Business Model: Status and Implications," presented how China's AI technology is connected to business and creating value by illustrating various cases. Professor Jang selected China's abundant engineering talents (10 million graduates a year), Xi Jinping's strategic AI policy, and a free market environment as elements of China's AI technology and business model creation. Facing the problem of manpower shortages arising from an aging population and low birth rate, China is said to have developed a strategic goal of achieving economic growth through AI technology that can support the workforce. Instead of a pessimistic approach that AI technology will take people's jobs, a change of perspective shows how we can solve problems facing society through AI technology. Clearly there are many possibilities in this field. 🤖

Summarized by **Miyea KIM** Research Professor, Barun ICT Research Center, Yonsei University



## What Has Changed in the Personal Information Protection Act?

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On January 9th, 2020, the Data 3 Act finally passed the National Assembly plenary session. The Data 3 Act collectively refers to three laws: The Personal Information Protection Act, the Act on Promotion of Information and Communications Network Utilization and Information Protection, and the Credit Information Use and Protection Act. In the era of the 4th Industrial Revolution, fostering new businesses using data has emerged as a national task, and the need to overhaul related legal systems has been steadily raised. The revised law will take effect six months after its promulgation. For some provisions of the revised Credit Information Use and Protection Act, the date of implementation will be specified by a Presidential Decree within one or one and a half year after.

There are some notable changes in the Act. First, in order to promote new data-based businesses, the concept of personal information was embodied, providing a legal basis for data utilization. Specifically, the concept of pseudonymised data was introduced, meaning “information that is pseudonymised so that it cannot be recognized by individuals without the use or combination of additional information to restore the information to its original state”. In this case, aliasing the information refers to “making personal information unrecognizable without access to additional information by deleting a part of it or replacing it partially or completely”. Moreover, as specified in the statutes, pseudonymised data can be used without the consent of the informant if the purpose of its usage is for statistical records, scientific research, or preservation of public records. In addition, the revision of the Act allowed professional institutions with security facilities to combine pseudonymised data held by different companies. Meanwhile, the responsibility of personal information processors for utilizing such data has strengthened. The revision imposes a duty to take safety measures when processing pseudonymised data or combining data, and bans identifying specific individuals. If violated, fines or criminal penalties can be imposed. The fines can be equivalent to 3 percent of total sales of the institution or company.

A second notable change was that the privacy protection system was unified. The Personal Information Protection Commission was upgraded to a central administrative agency under the prime minister. With the revised Act, the commission takes on the functions of managing personal information, which were once dispersed among the Ministry of Security and Public Administration and the Korea Communications Commission, resulting in unification of monitoring personal information and protection. Furthermore, the law was unified into the "Personal Information Protection Act" by readjusting the overlapping regulations of the "Privacy Protection Act" and the "Information Network Act."



As a follow-up measure to the "Data 3 Act," the government is planning to complete all the legislative procedures within the coming five months, revising the enforcement ordinances and rules between February and April and notifying the pre-announcement of legislation in March and April this year. In addition, to clarify the scope of using pseudonymised data and the procedures for combining data, the government plans to publish guidelines for each field and manuals for the implementation of the laws.


With the passage of the revised Data 3 Act, the government strengthened support for nurturing the data industry, and the industry is generally welcoming the revision. On the other hand, some civil society organizations are concerned about the possible misuse of personal information, saying that pseudonymisation can be identified and, thus, are not secure. Bearing such concerns in mind, supplementing the data industry with more detailed regulations is compulsory so that it can be revitalized without causing damage by misusing personal information. 🌐

## Mr. Kim; Can You Quit Smoking with Digital Aids This Year?

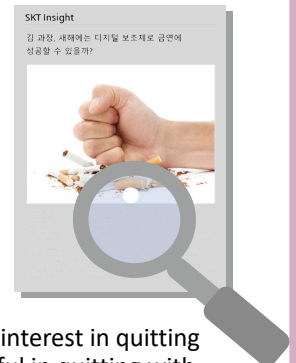
[SKT Insight SKT 5GX ICT Column, contributed by Barun ICT Research Center] 20.01.29

Those who have tried to quit smoking for more than 24 hours within a year (the rate of attempts to quit smoking) increased sharply to 36.1 percent in 2015, but soon decreased again to 24.8 percent in 2018. Nevertheless, one out of every four smokers try to quit annually - and the rate can change because of the recent emergence of digital aids that provide regular and realistic support. "Digital Aids" is an ICT service that assists people in changing their behavior.

In the United States, there is a digital therapy app called "Reset" that has already proven to aid drug addicts. When a doctor prescribes the app to a patient, the patient installs it on his or her phone to receive impulse control training and other programs. In Korea, there is a digital aids app called "No Smoke Gide" created by the Ministry of Health and Welfare. Through the app, people are supported to write non-smoking diaries and can receive counseling by chatting with consultants.

In Canada and the United Kingdom, 40 percent and 50 percent of smokers respectively showed interest in quitting with the help of digital aids. 19.8 percent in the United States said they had actually been successful in quitting with the digital assistant. All the Mr. Kims and many other smokers around the world hope to succeed and become healthier this year by using digital aids. 


Source: <https://www.sktinsight.com/120347>



## Preventing Novel Coronavirus: Cleaning Your Smartphone is as Important as Washing Your Hands! [SKT Insight SKT 5GX ICT Column, contributed by Barun ICT Research Center] 20.02.04

The World Health Organization (WHO) has declared a Public Health Emergency of International Concern regarding the Corona 19 (Novel Coronavirus). It enters the body through the nose, mouth, and eyes and reproduces using the mucous membrane as an incubator, and then develops into respiratory symptoms and diseases after its 14-day incubation period. Therefore, protecting your eyes, nose and mouth is crucial. In order to do so, the two most important rules are to wash your hands and wear face masks.

Among them, washing your hands is even being hailed as self-preventive inoculation since it is most effective in stopping infection. This is because 80 percent of the infections are spread through hand to hand and hand to other objects contact. However, washing your hands alone is insufficient; bacterial contamination on smartphones and computer keyboards is serious. Such objects act as a repository for bacteria as they remain for days to weeks. The bacteria and viruses on smartphones are problematic itself. However, a bigger issue is to touch them with your hands, and then rub your eyes, nose, or mouth, resulting in cross-contamination and allowing bacteria to infect your body and reproduce.

Although we use smartphones every day, many people don't recognize that they should be kept clean. We need to regard keeping smartphones, as hotbeds of bacteria and viruses, clean as another personal hygiene issue. Before washing your hands with water and soap for 30 seconds, why don't you take out a sheet of wet wipes right now and clean the surface of your smartphone tainted with fingerprints and bacteria? 

Source: <https://www.sktinsight.com/117112>




## [Security Column] 5G Security Should Address the Response to Covid 19

[ETNEWS-Electronic Newspaper] 20.02.24



To work towards better resolutions, we must converge two fields: infectious diseases research, involving the collection and analysis of the data on a virus and its danger, and ICT information protection research. For example, disease prevalence prediction and prevention management methods employed by the Korea Centers for Disease Control and Prevention were used to establish policies to prevent the spread of computer viruses. Further, the Repair Analysis Software (SW) algorithms used by ICT security companies to develop the anti-virus (vaccine) were applied in the field of medicine. The case of South Korea and its medical systems preventing the spread of the Novel Corona virus is worth referring to in order to prevent malware infection and improve recovery tactics in the 5G era. Specifically, to prevent the

spread of the Covid 19 epidemic, individuals' compliance to infection prevention rules is crucial. The same applies for information security issues. Thus, preventive methods should be organized and distributed so that individuals can easily access virus-related knowledge and comply with those rules. We should eradicate elements, such as pseudo-knowledge and phishing, which prevent the spread of accurate information, or at least help individuals to increase their ability to distinguish right from wrong information. In conclusion, systematic experience in dealing with infectious diseases should be actively used to hinder ICT abuse, such as computer malware, ransomware, and hacking, as well as create prevention policies and relevant management systems. 

Source: <https://www.etnews.com/20200224000165>

# Will the World's First Digital Currency be Successful?

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Image Source: freepik

A society without print books and in which robots replace humans has been predicted since the development of modern civilization and technology. Will a cashless society also be possible? Surveys show that around 10% of central banks are likely to issue digital money directly in the next three years [1]. Can digital money successfully settle into the economy and drive out paper money, which has been used for hundreds of years?

At the national level, the digital currency issued by the central bank in electronic form is called the Central Bank Digital Currency (CBDC). Unlike existing private cryptocurrency, which is difficult to measure intrinsic value and has high price volatility, it is stable because it is effective as a legal currency under the control of the central bank [2]. According to the Bank for International Settlements (BIS), 70% of the world's central banks are conducting research on CBDC. Why are they interested in digital currency? To know this, we turn to Facebook. Facebook announced the start of a cryptocurrency project in June last year when it revealed the Libra white paper [3]. Libra, backed by its corporate influence, can make authentic deals and replace fiat money, weakening the influence of central banks in the absence of borders between countries. In order to avoid this prospect and gain the influence of central banks, central banks from different countries have entered the CBDC study.

China is the first to open the door to digital currency as a society. It is estimated that China will be the first to issue a CBDC, as it has already opened its digital money research institute three years ago and discussed the possibility of trial publication this year. The Chinese government has secured blockchain technology in preparation for issuing CBDC, and it is clear from the existing cryptocurrency that it is guaranteed a 1:1 ratio

with the legal currency. In addition to being the first in the digital currency market, China's issuance of CBDCs could increase the international influence of the yuan, challenging the dollar. Countries that have to deal with the Chinese market will eventually be influenced by digital currency, and they will be able to formulate a digital yuan-based paradigm from a dollar-based currency [4]. However, there are also doubts whether China's attempts will be successful. This is because of the uncertainty whether legal digital currency can be easily distributed and accepted by the public in China is, which already has the world's most convenient digital payment system, such as Alipay and Tencent Pay [5].

As the world is paying attention to CBDC, the transition to a society based around digital currency seems inevitable. The question remains, however, whether a digital currency society is a desirable one. China already controls the social system centrally, aiming to strengthen its influence in the private economic market by issuing CBDCs. Aside from the justification of the digital currency society, doubts remain about whether it will completely replace paper bills in the future. Perhaps the answer lies in the fact that society is still holding on to its paper books, and robots have not yet replaced humans. 🤖

- Sources: [1] Hwang, Chi-kyu (2020, January. 25). "10% of the World's Central Bank is positive for digital currency issuance within 3 years". Bloter. Retrieved from <http://www.bloter.net/archives/368915>
- [2] Won, Tae Young (2020, January. 13). Will Central Bank Digital Currency (CBDC) Replace Cryptographic Currency. Sisajournal e. Retrieved from <http://www.sisajournal-e.com/news/articleView.html?idxno=212055>
- [3] Kim, Yeon-ji (2020, January. 7). [2020 Keyword #20] Central Bank Digital Currency]. IT Chosun. Retrieved from [http://it.chosun.com/site/data/html\\_dir/2020/01/06/2020010603354.html](http://it.chosun.com/site/data/html_dir/2020/01/06/2020010603354.html)
- [4] Im, Won-sik (2020, January. 23). Rekindled Digital Currency Debate. Korea-Business News TV. Retrieved from <http://news.wowtv.co.kr/NewsCenter/News/Read?articleId=A202001230227&t=NNV>
- [5] Cha, Dae Woon (2020, January. 6). China, taking time on legal digital currency... "Keep studying.". Yonhap News. Retrieved from <https://www.yna.co.kr/view/AKR20200106074500089?inp ut=1195m>

## Getting Rid of the Comment Section

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Last year, several high-profile celebrities took their own lives. Although it is impossible to pinpoint an exact cause, one reason that is repeatedly suggested is malicious online comments which have long been criticized by society. These comments, especially when geared towards celebrities, have become a social issue; however, no preventive measures have been taken. As the recent tragedies came to light, a survey conducted on 1,000 adults regarding disabling the comment section and real-time search queries showed that 8 out of 10 agreed that they should be disabled [1].

The decision made by the portal site Daum in October 2019 to disable the comment section in entertainment articles was welcomed by many. Additionally, Naver is applying its own comment filtering technology, Cleanbot, to their news services. Cleanbot uses AI technology to automatically hide comments that contain profanity [2]. There is also a way for individuals to control comments. Google Chrome, Firefox, and Safari offers a web browser extension called Shut-Up to hide the comment window that appears on internet sites [3]. This countermeasure can be interpreted as a result of focusing on the cons instead of the pros of the comment function.

We need to consider whether hiding the comment window is the best preventive measure. Simply hiding the comments from sight does not solve the nature of the problem. Instead, we need to understand what kind of people write malicious comments. According to a recent study, middle school students' aggression, impulse, and stimulus seeking tendencies had a significant effect on

the participation in writing malicious comments [4]. The study showed that there is a connection between the psychological tendencies of adolescents and malicious comments. There needs to be early intervention by providing education on digital use. Furthermore, the purpose of the education should not simply be focused on increasing usage skills but also on the right way to utilize those skills.

Freedom of expression is one of the most important values. However, when this value is used maliciously against other people, there is a need for it to be regulated. In this situation, technical measures bring only temporary effects. In order to reduce malicious comments in the long term, it is important to educate children to learn the proper way to use digital skills online, making an environment that is difficult for malicious comments to survive. When this environment is created, we will no longer be shocked by tragic celebrity news on the front page. 🌈

- Sources: [1] Lee, Jung-hyun (2019, December 17). 85% of Adults "Need to close the portal entertainment news comments.". Yonhap News. Retrived from <https://www.yna.co.kr/view/AKR20191217114600005?input=1195m>
- [2] Kim, Jung Min (2019, November 13). Naver news uses the AI vacuum cleaner "Cleanbot" against the "War on malicious comments". Korea ChungAng. Retrived from <https://news.joins.com/article/23631406>
- [3] Chae, Ban Seok (2019, December 1). Malicious comments, what should we do? Difficult to solve with mere technical measures. Korean Press Foundation. Retrived from <http://www.kpf.or.kr/site/kpf/research/selectNewsPaperView.do?seq=575337>
- [4] Kim, Ji-In and Lee, So-yeon (2019). Middle School students' witness to malicious comments and the effect of aggression, impulsiveness, and stimulation on their participation. National Youth Policy Institute, 30(4), 131-158.





# AI Uses in Coronavirus Disease-control, Prevention, and Cure

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For centuries, humanity has suffered from infectious diseases, the spreading of which have been outlined and recorded. With the invention of computers, however, multiple programming language codes that enable AI and deep learning has made a huge leap forward for medical enhancement and disease control. In this regard, AI has been a crucial application in analyzing the coronavirus epidemic—the most recent infection that the Center for Disease Control and Prevention (CDC) issued a global warning for and that which caused quarantining of an entire city (Wuhan, China) while spreading all over the world in a matter of days.

Within a few hours after the coronavirus outbreak in January 2020, scientists were already trying to find countermeasures to contain and study it with accuracy. They mapped the virus's genetic makeup and the speculated time and region for spreading using highly-accurate training programs. In particular, the use of digital health care to outline the evolution of disease predictions at the genome level and thus prevent further outbreak, has seen significant innovation. Through such digital genomic analysis, we learn not only about diseases, but also useful prevention methods.

According to published articles that studied the coronavirus's physical and chemical structure, as well as its parent molecule, [1] researchers have employed AI to predict a cure. Results indicate that HIV Atazanavir could be used as a drug to weaken the coronavirus and perhaps function as a possible cure.[2] In addition to predicting the source of cures, the evolution of AI could further improve the quality of treatment. In 2020, a large database of medical images taken by MRI, CT scans, and X-rays will be diagnosed through AI to advance the world of diagnostics and therapies, using AI as well.

Likewise, AI can be used in multiple ways regarding virus detection and prevention, particularly by using data-driven approaches to track the spread of the likes of the coronavirus. AI-based neural networks can predict the spread of infectious diseases in real-time. In addition AI algorithms can identify which preventive measures can have the greatest effect. AI is also being used to create new drugs, which we may well see happen in the case of the coronavirus. AI and machine learning may even help us predict where virus outbreaks are likely to strike before they do so in the future.[3]



Sources: [1] Pradhan, Prashant, Ashutosh Kumar Pandey, Akhilesh Mishra, Parul Gupta, Praveen Kumar Tripathi, Manoj Balakrishnan Menon, James Gomes, Perumal Vivekanandan and Bishwajit Kundu (January 31, 2020). Uncanny similarity of unique inserts in the 2019-nCoV spike protein to HIV-1 gp120 and Gag. *bioRxiv*, 1.

[2] Beck, Bo Ram Beck, Bonggun Shin, Yoonjung Choi, Sungsoo Park, Keunsoo Kang

[3] Prosser, Marc (Feb 05, 2020). How AI Helped Predict the Coronavirus Outbreak Before It Happened. Singularity hub.

## Internet Shutdowns and its Economic Impact : A New Chapter in Indian Democracy

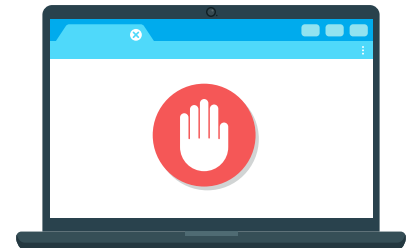
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Image Source: freepik



Though there has been much discussion on the positive role ICT, social media, and other internet platforms have in strengthening the foundations of democracy; however recent arguments point out how the internet can also dismantle democratic institutions and suppress citizens' dissent. Apart from its impact on the democratic fabric of a state, much less has been discussed about the internet's role in hampering a nation's economy as most governments are in the process of digitally transitioning into financial and economic mechanisms. One such case is India, which has always boasted that it is the largest democracy in the world while simultaneously being criticized for prevalent internet shutdowns by the government. Indeed, a CNN article from December 14th 2019 called India the "world leader in Internet shutdowns." The Internet Shutdown Tracker went further, nicknaming it the "Internet Shutdown capital of the world" and heavily criticizing the country's transition into digital authoritarianism with the highest number of state-led network disruptions: 138 reported instances in 2018 and 91 in 2019 [1].

According to a report by Business Standard, India is the third most economically-affected country after Iraq and Sudan, having lost over \$1.3 billion due to domestic internet shutdowns which lasted for 4,196 hours in 2019 [2]. Kashmir, the northernmost region, has seen the longest internet shutdown in the contemporary democratic world with 160 days and counting since the ban started on August 4th 2019. The region which is mostly dependent on the tourism and handicraft industries saw the biggest loss due to the absence of internet, inducing local businesses and entrepreneurs to pull out from the region [3]. This has also impacted several other regions in India which were involved in economic transactions with Kashmir and other North-Eastern regions of the country.

After the controversial de-monetization in 2016 and the push for a digital economy, frequent internet shutdowns at state and regional levels compromise the very objective of such government policies. In addition to the macro-outcomes, the internet also affects the heart of the informal economy and small businesses in the country. For example, artisans cannot sell their products online, tourists cannot book hotels, businesses and e-commerce cannot operate; schools and colleges cannot utilize their digital infrastructure, banking and journalism altogether are hit by its consequences. Despite the country's positive outlook on becoming a \$5 trillion economy, India has been jeopardizing this vision due to the risk associated with the clamping down on the ICT infrastructure in the country [4]. Since these factors frequently lead to intentional internet shutdowns, the Eurasia Group has even labeled India as the fifth highest "Geopolitical Risk" in 2020 [5]. Recently, the Supreme Court of India reviewed the internet shutdown in Kashmir and declared that it is a violation of the Telecom law if the government suspends Internet services indefinitely. However, the Court's judgement still failed to address the economic impacts of such acts by the state [6]. While the internet shutdown is mostly viewed as a threat to freedom of speech and press, its negative impacts on the economy of the region, especially as a majority of the livelihoods depend on internet access, thus turning it into a human rights issue too. Consequently, the government needs to reassess the need for such disruptions. 🌐

Sources: [1] Krishnani, Ravi. (2019, December 14). India: The world leader in Internet shutdowns. CNN. Retrieved from <https://edition.cnn.com/2019/12/14/opinions/india-world-leader-in-internet-shutdowns/index.html>

[2] Roy, Sukanya. (2020, January 10). How internet shutdowns cost India more than \$1.3 billion in 2019. Business Standard. Retrieved from [https://www.business-standard.com/podcast/economy-policy/how-internet-shutdowns-cost-india-more-than-1-3-billion-in-2019-120011000736\\_1.html](https://www.business-standard.com/podcast/economy-policy/how-internet-shutdowns-cost-india-more-than-1-3-billion-in-2019-120011000736_1.html)

[3] Bhattacharya, Ananya. (2020, January 8). Over 4,000 hours of internet shutdowns cost India more than \$1.3 billion in 2019. QUARTZ INDIA. Retrieved from <https://qz.com/india/1781178/internet-shutdowns-over-caa-article-370-cost-india-1-3-billion/>

[4] Jose P, Jinoy. (2019, August 15). The Cheatsheet: How Internet shutdowns hurt the economy. The Hindu Business Line. Retrieved from <https://www.thehindubusinessline.com/opinion/columns/the-cheat-sheet/the-cheatsheet-how-internet-shutdowns-hurt-the-economy/article29094514.ece>

[5] Haidar, Suhasini. (2020, January 09). Modi govt policies hampering India's economic growth, foreign policy: risk firm. Retrieved from: [https://www.thehindu.com/news/national/modi-govt-policies-hampering-indias-economic-growth-foreign-policy-risk-firm/article30525271.ece?utm\\_campaign=socialf&fbclid=IwAR0Clyx7\\_yLNZRMHpGzJk1nzADunMvVJesn9YoXoCwEmCAFvScDNQ1aWPbg](https://www.thehindu.com/news/national/modi-govt-policies-hampering-indias-economic-growth-foreign-policy-risk-firm/article30525271.ece?utm_campaign=socialf&fbclid=IwAR0Clyx7_yLNZRMHpGzJk1nzADunMvVJesn9YoXoCwEmCAFvScDNQ1aWPbg)

[6] Suri, Manveena. (2020, January 10). India's Supreme Court orders review of Kashmir internet shutdown. CNN. Retrieved from: <https://edition.cnn.com/2020/01/10/asia/kashmir-internet-sc-intl/index.html>

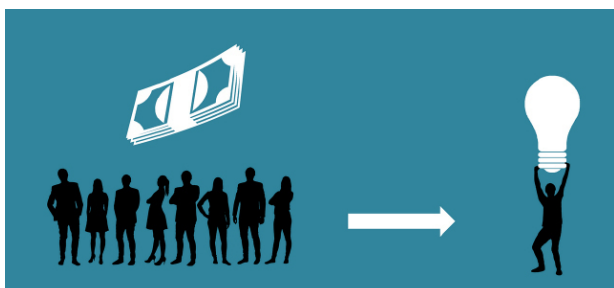


### The Power of Investing in Startups

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In search of its own Silicon Valley, Mexico has recently attracted the startup market to its cities. In the past decade alone, the number of new technology-affiliated associations has gained three times its previous membership [1]. This is attributable to the country's efforts to place itself on the map as a tech center by investing nearly \$3 billion in research as well as tertiary education institutions in these areas [2].

The Copenhagen Consensus Center reports that one Mexican Peso could bring in 25 times the return if it is invested in web expansion [3]. In this way, Mexico is currently working on increasing internet accessibility to a greater number of residents. One such measure has been to bring the internet to less-populated areas by taking advantage of the popularity of cellular devices, which 85% of the population have [3]. In addition, the country has been working to solidify itself as a center of both commerce and cooperation through corporate negotiations. By doing so, the flourishing of innovative businesses has contributed to thousands of new jobs [2].

The popularity of startup programs has gained traction with the Mexican public as well. With a total of nearly 250 companies within its financial technology bracket alone, Mexico has become a leading contributor to easier remittance and loan systems. Additionally, it is a popular market for companies collaborating with other countries regarding bicycle and scooter-renting applications [4]. However, care is also taken into consideration in order to ensure that business is conducted under some supervision. A law approved in 2018 enforced clear definitions of financial technology components while also promoting honest practices [4, 5].

Notably, Mexico moved into the top sixty "competitive" countries according to a list compiled by the World Economic Forum [2]. However, it still has a long way to go. For example, less people have access to easy portable setups, such as Wi-Fi modems at home, in comparison to the average for similar developing nations [3]. Still, there are some initiatives in place to help the next generation create even more novel inventions. Such proactive goals mainly focus on education. The country hopes to bring about a new creative spark for its young scholars by creating an enriching curriculum as well as extracurricular activities with a more global focus [1].

The future is not just about economic growth, but rather about the increased standard of living which will accompany such changes. By focusing on Mexico's potential for new technological feats, the country should, in accompaniment, further develop fields such as sustainability and transportation. The interconnected systems of startups, education, and public policy are just a few of the primary factors which could help Mexico become a more efficient, sustainable, and technologically inclusive home. 🌐

Sources: [1] Ammachichi, N. (2017, May 2). Mexico has Invested US\$2.7 Billion into ICT Growth since 2009. Retrieved from <http://www.mexico-it.net/mexico-invested-us2-7-billion-to-stimulate-tech-investment/>

[2] Mexico Rises as a Global Hub for Innovation as Tech Start-ups Have Tripled in 10 Years . (2019). Retrieved from <https://www.prnewswire.com/news-releases/mexico-rises-as-a-global-hub-for-innovation-as-tech-start-ups-have-tripled-in-10-years-300814747.html>

[3] Mexico Perspective: ICT Infrastructure. (n.d.). Retrieved from <https://www.copenhagenconsensus.com/publication/mexico-perspective-ict-infrastructure>

[4] Wood, S. (2019, January 29). 13 Facts about Mexico's Growing Technology Scene. Launchway Media. Retrieved from <https://www.launchwaymedia.com/blog/2018/5/29/10-facts-about-mexicos-growing-technology-scene>

[5] Dempsey, C. (2019, November 18). Why Mexico's Fintech Sector will be One to Watch in 2020. Nasdaq. Retrieved from <https://www.nasdaq.com/articles/why-mexicos-fintech-sector-will-be-one-to-watch-in-2020-2019-11-18>

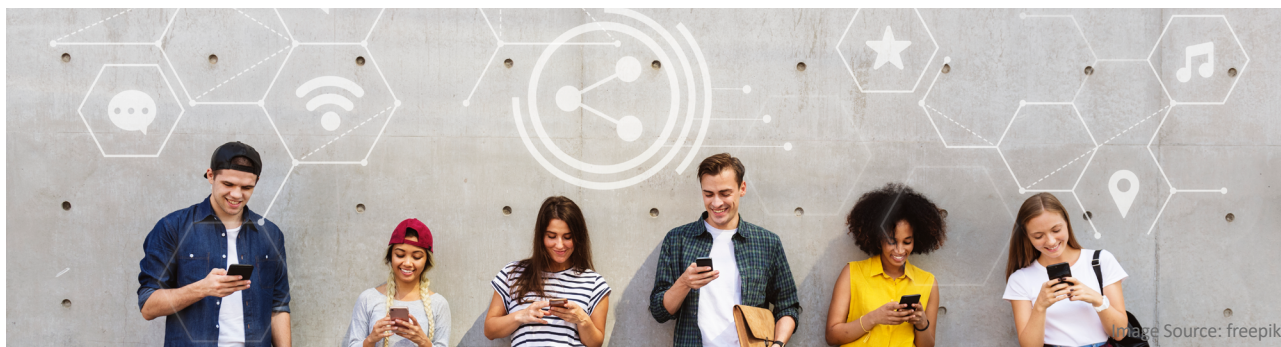
## PubliSHER: A New Initiative to Solve Gender Disparity in the Digital Sphere

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According to market research done in Nigeria, Ghana, Kenya, and South Africa by PubliSeer, a digital content distributor, 76% of digital content put out by the platform was from by male African creatives [1]. As the findings of this research suggest, a big gap exists between the numbers of male and female African creatives. It also raises another question: is this gender imbalance related to the limited opportunities and support given to women in the art industry, or is it caused by other reasons?

To address this issue, PubliSeer launched a new initiative named, PubliSHER, which aims to reduce the gender gap in digital media. This initiative will support African female artists to be actively involved in shaping Africa's creative industry by distributing, promoting, and protecting the works of these artists for free [3]. Moreover, female creatives will be given 100% of their works' sales which is a vast difference from the usual business model of content platforms, where PubliSeer retains 25% of the sales [2].

As the African continent becomes more integrated in the global community, digital distribution of creative works becomes important in shaping the African narrative. However, this narrative will stay incomplete and limited if women continue to make up the minority of African artists and if their voices are silenced from the picture. Therefore, the launch of PubliSHER is a unique opportunity which will inspire and support women who want to become artists that have their works distributed around the world.

PubliSeer's current goal is to work with two million African artists by 2030, aiming to have 50% of them be women [2]. This is exciting news for Africa and those who are interested in African art. The representation of more women artists will add value to African art and in economic terms, female creatives will be given an opportunity to make money from their creativity and hence improve their standards of living. In that way, PubliSHER can be seen not only as a platform which will bridge the gender gap in digital media by supporting African female creativity, but also one that empowers women by monetizing their creative work. 🌐

Sources: [1] Folami, David. (December 24, 2019). PubliSeer Launches PubliSHER to Bridge the Gender Imbalance Gap in Digital Media. Retrieved from <https://www.jbklutse.com/publiSeer-launches-publisher-to-bridge-the-gender-imbalance-gap-in-digital-media>

[2] BiztechAfrica. (December 19, 2019). PubliSeer Launches publiSHER To Bridge The Gender Imbalance Gap in Digital Media. BiztechAfrica. Retrieved from <https://www.biztechAfrica.com/article/publiSeer-launches-publisher-bridge-gender-imbalance/15315/>

[3] Okeowo, Yinka. (December 17, 2019). PubliSeer Launches PubliSHER To Bridge Gender Gap In Digital Media. TechEconomy.ng. Retrieved from <https://techeconomy.ng/2019/12/17/publiSeer-launches-publisher-to-bridge-gender-gap-in-digital-media/>



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## Is Your Clicking a Consent to Stalking?

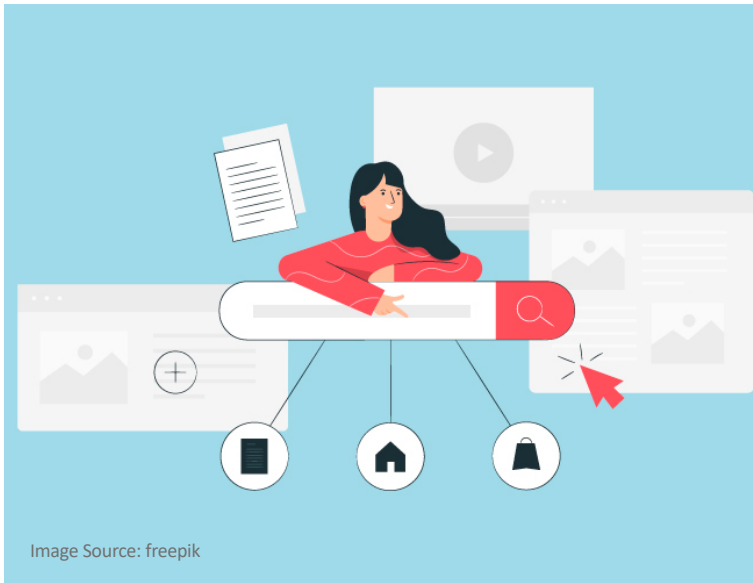
Written By **Donghwan GIM**  
English Language and Literature

My friend recently clicked on a few shoe advertisements on Facebook, and now his feed is full of shoe ads! We all have had similar experiences where we are shocked or annoyed to find our Facebook feed full of advertisements for things that we searched for an hour ago. This type of personalized marketing is possible because technology allows companies to analyze and track our keyword searches and clicks. Do you know how much your clicking on Facebook is worth? When we click to find information, it becomes a free source of data to companies, making it possible for them to present a perfectly customized marketing advertisement. Whether or not we are actually interested in the product is not important. Moreover, social network sites with myriads of traffic can gain an enormous amount of profit. In other words, clicking provides personal information for Facebook to sell to other companies, hence creating profits. The three articles, “Welcome to the Age of Privacy Nihilism” by Ian Bogost, “Do You Know How Much Private Information You Give Away Every Day?” by Manoush Zomorodi, and “Should Big Tech Own Our Personal Data?” by Steven Hill especially show how the tech companies use my personal information.



Bogost, Zomorodi, and Hill agree that tech companies collect our private information for their profits. However, Bogost sees privacy infringements as inevitable whereas Zomorodi and Hill regard them as a solvable problem. While I agree with all the authors' concerns regarding privacy infringements, I especially concur with Hill's opinion that the intervention of governments is needed to solve the invasions of privacy. To address the challenge of privacy protection, I think that the government should focus not only on managing private information but also on establishing the standard of privacy infringements.

All three authors argue that we are facing a situation where privacy infringements by big tech companies occur for gaining profits. Unveiling such infringements of privacy have existed since the appearance of data. Bogost insists that tech companies are collecting our private information “in unexpected and duplicitous, ways” for profit-making [1]. In fact, information is compromised through seemingly unrelated activities such as searching places on Google Maps, and tech companies even buying privacy from brokers who gather it in illegal ways. Moreover, according to Zomorodi, companies collect all the information hoping nothing stands “between ... them and your personal information” to generate revenue [4]. Tech companies such as Facebook and Google are now demanding everything from relatively simple information such as names and gender to extremely trivial things such as family relationships as if this infor-

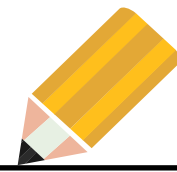


mation would help these companies provide better services for us. Likewise, Hill suggests that big tech companies provide services without receiving any money, but instead they are “vacuuming up” and monetizing our personal information [2]. Many tech companies such as Google collect all the detailed information through a user’s information search and mobile tracking. And all the information they collected is patterned in a certain way and used in marketing for their profits. Therefore, the authors agree that today there are privacy infringements by tech companies that are exploited under the name of profit.

Despite their concerns regarding privacy infringements by big tech companies, all three authors take different stances towards solving the problem. Pointing out that the services of big tech companies are the basis for our lives, Bogost argues that resistances to infringements by tech companies are a “losing battle” [1]. Privacy violation stems from the use of services offered by big technology companies, which we cannot live without because all our lives are very much related to them. Therefore, it is impossible to solve the problem.

On the other hand, Zomorodi and Hill believe that privacy infringements occur due to the behavior of a particular subject and argue that privacy infringements can be solved through changes of action. Mentioning that infringements of information are due to an individual’s short-term decision making, Zomorodi argues that if we become “disempowered” we have no choice but give up our privacy, but this problem can be solved through the change of individual actions [4]. If we are too trapped in the services, we will just have to give our information, so we must move away from them through individual behavior changes. Furthermore, warning that simple changes in the behavior of individuals do not have a significant impact, Zomorodi argues that the changes of actions should be done collectively in order to solve that problem [4]. One-man behavior change will only give tech companies temporary difficulties in not getting one’s information, but if that takes place collectively it will change the attitude they take with our information. Slightly diverging from Zomorodi’s opinion and diagnosing that privacy infringements have occurred because the tech companies violate regulations, Hill insists that the government has to actively get involved in protecting our privacy by recognizing our personal information as a part of the “data commons” [2]. This means that our personal data should be considered as a public good which is managed by the government, which must then respond to problems related to our privacy. Thus, the three authors view the cause of privacy infringements differently and propose different solutions accordingly.

After reading the three articles regarding the Fourth Industrial Revolution, I agree with authors that big tech companies are infringing on our private information on a daily basis. I believe that we now live in “the empires they have built” based on our private information because all our actions are recorded on their servers [1]. As a result, Facebook is full of feeds that promote product sales. Sometimes I am surprised that the “alarms or mails” on my smartphone seem to exactly know what I am looking for. Although I’m not sure whether this phenomenon is caused by my carelessness, as Zomorodi claims, or by the regulatory violations of big tech companies, as Hill argues, but I am certain that they have my private information through privacy infringements and are using it to encourage me to purchase products.



Among their opinions, I strongly agree with Hill that the governments must actively try to solve this phenomenon as what has been done in the past. Agreeing with Hill's idea of considering the "historical perspective", I believe that referring to the past will give us a more clear and effective answer [2]. Indeed, the causes and contents of the problem may differ in the course of history, but problems in the private sector have always arisen, and the government solved them through the enactment of mandatory laws or the establishment of relevant departments. Thus, like the historical process, given that the current information infringements are also a failure of the private sector, the problem can be resolved by government actions.

While governments can intervene in many ways, they should focus on establishing clear standards for privacy infringements so that people can recognize privacy rights as common knowledge. Currently, some governments are moving against privacy infringements, such as the Korean government which is trying to enact the "The Data 3 Act" [3]. This Korean bill particularly focuses on protecting privacy through anonymity and selecting an institution. The government believes that managing and anonymizing information is the most important issue of privacy invasions. Although we have several rights such as privacy protection, it is difficult to exercise those rights when someone invades them. The most challenging problem with privacy infringements is that people are not familiar with the standards or lack a clear understanding of privacy rights. For example, if we get arrested, the police officer must read us our Miranda Rights before they ask any questions. We are told that we have the right to remain silent so the police cannot ask questions if we choose to remain silent. These rights are often seen on television and studied at school so they are common knowledge to many citizens in the USA. However, when there are laws and the criteria are unclear, we cannot determine from which point the rights are violated and, thus, cannot exercise our rights. Therefore, it is essential for the government to set clear criteria for what are privacy infringements. If clear standards are established, we can actively assert our right to protect our private information when we recognize that it has been infringed. Furthermore, if the right to protect information becomes common knowledge, big technology companies can re-recognize this right as a natural right that should never be infringed, just as the investigative agency perceives Miranda's rights as inviolable. To sum up, I think the problem of information infringements can be solved if individuals' rights are fully guaranteed through the establishment of clear criteria.

Overall, I agree with the three authors that information infringements are being carried out too pervasively by tech companies. However, I believe that this problem can be solved through active government intervention, and that the government should concentrate on establishing clear standards for privacy infringements. When privacy rights become common knowledge to all citizens, similar to the Miranda's rights, then we can live an enriched life without tech companies' stalking our clicks.



Image Source: freepik

- Sources: [1] Bogost, Ian. "Welcome to the Age of Privacy Nihilism." The Atlantic. 23 Aug. 2018, <https://www.theatlantic.com/technology/archive/2018/08/the-age-of-privacy-nihilism-is-here/568198/>. Accessed 6 Nov 2019.
- [2] Hill, Steven. "Should Big Tech Own Our Personal Data?" Wired. 13 Feb. 2019, <https://www.wired.com/story/should-big-tech-own-our-personal-data/>. Accessed 6 Nov 2019.
- [3] Lim, Jihoon. "The Data 3 Act, left unattended for a year, exceeds the National Assembly's threshold on the 19th." ["The Data 3 Act, which has been neglected for a year, falls on the threshold of the National Assembly on the 19th."] Seoul Economy, 12 Nov. 2019, <https://n.news.naver.com/article/011/0003650276>. Accessed 24 Nov 2019.
- [4] Zomorodi, Manoush. "Internet Privacy: How Much Information Do You Give Away?" Time. 8 Nov, 2018, <https://time.com/4673602/terms-service-privacy-security/>. Accessed 6 Nov 2019.

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