BIG DATA DILEMMA: TECHNOLOGY ADVANCE VERSUS PRIVACY VIOLATION

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Abstract— **The advance of new media technology in last few decades had brought the users into the era of big data. Data had become important material in producing social and economy values. It was proven that much business start-up or government organization used big data periodically as the basis of market analysis. Data and market preference collected were considered to be able giving advantage in improving efficiency, innovation, productivity and also new policy. However, other than giving benefit, unlimited online space caused personal data as well as user preference could be collected by the third party so it had led to privacy safety issue.**

Keywords— *big data, technology, privacy concern*

I. INTRODUCTION

When opening the page of Google to find review of new released movie and when reading article of the movie, advertisement pop-up of discount from an online shop which the products were preferred by the author appeared. Initially, the author was not interested to buy new cloth, but then tempted by advertisement 'umpan iklan' appeared from the page of the article. In other time, the researcher booked hotel and transportation for a trip to Bali from a site called as Traveloka. In some other time, the advertisement pop-up of Traveloka and other online booking sites for the route of Surabaya to Bali also appeared. The experiences of the author above showed how our today's activities in cyberspace either from mobile phone, laptop, tablet, or other connected gadget to internet has become the record of consumer attitude pattern for businessmen that utilize communication and information technology. With the high level of human activity to the utilization of communication and information technology, so there are trillions data byte that come in, which then refers to a terminology called as big data [1].

Big data is a new term used to identify data set which size is very large and complex [2]. Among the companies that have long been utilizing big data are telecommunication, bank, and e-commerce. They use big data to know consumers' attitude, then they collect information in transaction process. The information would then be made as recommendation to sell their product and service. The marketing division in the company could easily determine the strategy of advertisement placement. However, it does not mean the utilization of big data happen like that. There is principle that should be obeyed by the users when they utilize big data so they will be in the proper line. In other hand, as a result of the development of communication and information technology (ICT), the use of big data surely has consequence happening in the society.

High rate of access of the society to ICT through any device become important information for the availability of big data. If this data is processed maximally, it would help the process of decision making especially in the sectors of product business and service. But, the question is whether the use of consumers' information is in line with the applicable ethic? Therefore, this paper would discuss the utilization of big data, basic principle of big data as communication and information technology; also the consequence resulted from the access of this big data.

II. FINDING AND DISCUSSION

A. Definition and the Basic Principle of Big Data as a Result of ICT

The development of communication and information technology (ICT) from time to time has changed the life of humans starting from the discovery of writing, printing machine, radio, television and computer as well as smartphone. Technology, as stated by [3], is 'a design for instrumental action that reduces the uncertainty in the cause-effect relationships involved in achieving a desired outcome'. It means that the use of technology helps humans to do activities as expected including the communication and information technology as their way to do communication in social life.

In line with the civilization of human being that keeps being in evolution since culture society and industrial society, until information society [4] – so the technology used also experienced evolution. In industrial era, the communication was done through mass communication; it means the communication happened from one-to-many, with unknown amount of recipients, and with more interactions in face-to-face. However, in the era of information society, the communication is mediated by nature and it can be done in many-to many ways [5]. In the era of interactive communication as in the present, the need of information for the society is very high. It is made easy by the growth of communication and information technology to be used and accessed, especially when internet has come. Technology has created the way we interact to the other individuals. [3] describes technology as 'a window of the world'; it means technology lets humans to know the event that they might not experience directly.

Communication technology as hardware in the structure of organization that contains social values, which lets individual to collect, process, and share information with others [3]; [6]. Meanwhile, according to Weiner [6] information technology is process and distribution of 'data' or information with the combination of computer and telecommunication. Big data discussed in this article is the combination result of communication technology, information, and telecommunication. Data is created from the interaction of internet users in cyberspace through any software and platform – it can be collected from chat on Facebook, interaction among online gamers, online transaction that is accessed from smartphone, computer, and laptop. So, unconsciously the routine activity we do every day through cyberspace can be used as basis data for certain importance either for business, government, or others. The following figure shows big engagement of the society with internet that can create trillions of data every day. This data is then used by big organizations to make decisions in organization, which would be separately discussed in after this sub chapter.
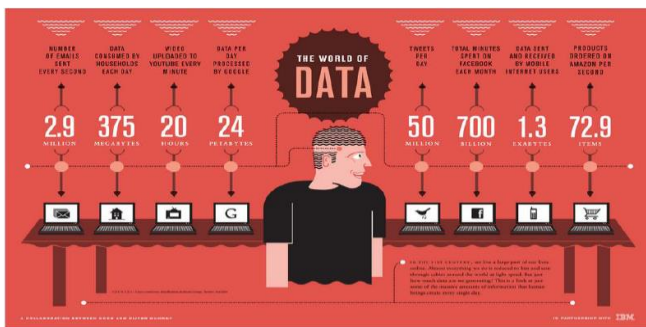

Fig. 1. The World of Data

Data has important role in making strategic decision. Therefore, the party that can process and utilize those data in big, quick, and various volumes can get big benefit too [1]. As result of communication and information technology, if the utilization is not balanced with the principle in using, so this data would be misused.

First, ICT should not violate the ethic. The ethic meant here is azas, the value associating with behavior, manner, politeness, value of what is wrong and right, and also the right and obligation of communication and information technology applied by a party or society [7]. Second, ICT should not erase individual dignity, self-authority, or even enslaved by technology. Humans should have high-tech-high-touch principle which has tendency sophisticated technology but what is important is to improve the ability of "high touch" aspect which is "human"[7]. Third, technology should not erase human responsibility. The purpose of communication and information technology is to help human to solve problem, it makes human to be more having work if without technology in his activity [7].

B. The Utilization of Big Data in Business Sector

The use of big data in private sector is mostly used for marketing. From the experience written by Jul Ismail, a lecturer of Telkom University [8], said that telecommunication company use digital information monitoring system from web, Twitter, and others, so it will

be easier to know the problem of the consumer related to product and build commitment to follow up the problem in longest 6 hours. By analyzing these data, it can be known what services are used by the consumer, then at what time he is active using the service, and many others. The result of this analysis can be used for any importance. For instance, it can be used to know the quality of traffic in a BTS, it can even be used for marketing importance and business so marketing company can give proper advertisement for the users who need them.

The utilization of other big data is for e-commerce service. In a report written by [9], Bukalapak collected information of users' habit when they access their site. Data Scientist Lead of Bukalapak, Teguh Nugraha, revealed of about 13 million site users, thousands of information is obtained in a minute which come from the total of click by the site users. The collected information will be used to determine what strategy that would be done, one of which is the offer of recommendation link. So, if the same users access Bukalapak site in someday, then the system will automatically give proper recommendation link that is suitable with their preference. Other e-commerce application that uses big data is Go-Jek, it also utilizes big data to ease the users to get their orders through integration with Google Maps [10]. Kevin Aluwi, Chief Information Officer and Co-Founder of Go-Jek said that the use of big data is the thing that cannot be bargained anymore in the field of digital business world as it involves the decision to serve consumers quickly and efficiently.

Data in the article of [11] stated that utilizing until selling personal information of consumers is considered as new marketing strategy that can hugely influence to improve digital marketing. Marketing strategy can be in the form of pop-up advertisement through algorithm system, email with promotional offer and discount, and product selling through personal telephone. Data Mastel and [12] stated that of 98% consumers who buy online in Indonesia need legal protection or policy from the government. Consumer personal information protection is one of the important issues in e-commerce in Indonesia [13], it is caused that there is no rule in the law that specially regulates consumer personal information protection by the government. In fact, in modrn nation, information and consumer personal data have protection in the law.

In other hand, data of [14] stated that the challenge faced by e-commerce in Indonesia is the existence of consumer sentimen because of cyber fraud including steal of consumer personal information without any permission. Utilizing, collecting, and misusing consumers' personal information is a legal violation. However, this awareness has not been becoming special attention in Indonesia due to the lack of peer-group that accommodate and support the debate of issue that their privacy is important to be protected. Therefore, literature is something needed by the consumers in Indonesia as the data of [15] stated the achievement of e-commerce consumers transaction in Indonesia experience significant growth from year to year. In other hand, Indonesia is one of the biggest e-commerce countries market growth in Asia-Pacific.

E-commerce operated in Indonesia has built approach to protect personal information or consumer privacy through

privacy policy feature. However, in fact, safety system and privacy policy used in e-commerce site was not proper to digital safety standard [16]. Safety system is not proper to the standard is proven in 2016 when cyber crime happened in a big platform in Indonesia which is Tokopedia and BukaLapak. Those e-commerce platforms were hacked and the doer stated that he could get broad access to take important data of the consumer such as email address, password, bank account number, and even credit card number [17]. This event proved that big e-commerce platforms could not guarantee consumers' personal information safety. By that event, it cannot be denied the potency of consumers personal information distortion could happen on new e-commerce.
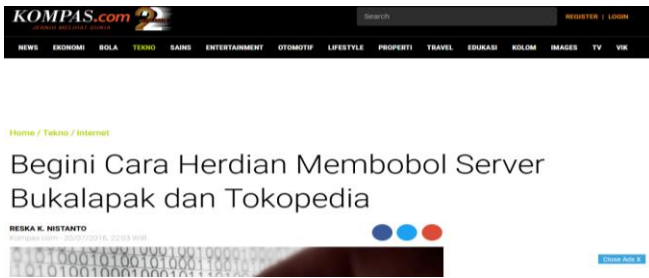

Fig. 2. Cyber Crime Case in Indonesian e-commerce

C. Social Consequence of Big Data Utilization

Technology is created by humans and humans are created by technology. [18] said that cognitive structure of individual and the social relation of individual are strongly dependent with the form or communication system that dominates certain era. It means human experience in certain era is strongly dependent with communication and information system technology that develops in that era. The research result of MacKenzie and Wajcman in [19] several case studies showed that vital element in determining either technology would be adopted or vanished is social condition. Technology is a part of social system, it is a product of human activity and it has been existed since human civilization as part of human culture and interacting with social change in the society [20].

This was utilized by the developers of communication and information technology in developing the developed technology in the society. Information blast in the society derived from faster growth of information than the information affordable to be processed by individual or society which caused 'overloading information'. [3] called it as serious problem that arose for individuals and society, he also suggested new communication technology that can overcome the information blast. By then, big data is developed by the experts. However, the ability to organize much data created other social consequence which is privacy and commercialization.

Information collection process which turned into big data does not only happen when we access the internet for daily need, for example online purchasing or accessing the information we need. When we put personal data on Facebook, Twitter, or upload video on YouTube, we unconsciously have given our privacy information to open access technology. This data would then be used by data

analysis companies as basis data or maybe sold to other company (third party) that needs this data for marketing and business purpose. In the principle of ICT mentioned above, technology should not remove individual dignity and also self-authority, but that is what happened to humans as technology users. Personal data that we should protected could become boomerang for irresponsible human to reveal personal data through social media.

Other case, have we ever been called by a company to offer insurance? Obviously, we are confused how it knows our number when we never input data to that insurance company? Hence we can see that our privacy in the form of personal information has been violated by commercialization. Other case leak of Go-Jek users so personal information such as name, address, telephone number and daily route could be traced [17]. According to the Executive Director of ICT Watch – Donny Budi Utoyo, it is obviously damaging the users of the application if their data are known by irresponsible party and do users habit mapping that could be used for evil purpose. Data safety is unsettling for technology users as the principle of technology is not erasing human responsibility. As a company, Go-Jek should be responsible to protect consumers' data that use its service. However, the data are in fact easy to be accessed by other party. Technology does not only be able to go through space and time as said by Marshall McLuhan, but it can also go through privacy territory. In fact, ICT should not violate the ethic which is the values applicable in the society including individual privacy violation.

III. CONCLUSION

Communication and information technology (ICT) has changed many living aspects of humans. It cannot be denied, the life of humans becomes better by technology. However, the use of communication and information technology should also be followed by ethic and responsibility both in micro which is the individual using social media as well as other application and big organizations that utilize big data from the individual interactions in cyberspace. If this principle is implemented with responsibility, it can be the basic of better social life order.

REFERENCES

[1] Kementerian Komunikasi dan Informatika. (2015). Buku saku big data. Jakarta: Kementerian Komunikasi dan Informatika.

[2] Asniar. (2015). Penggunaan big data analytic di perguruan tinggi. Conference paper. DOI: 10.13140/RG.2.1.4581.9046.

[3] Rogers, E.M. (1986). Communication technology the new media in society. New York: The Free Press.

[4] Toffler, A. (1980). The Third Wave. New York: Bantam.

[5] Croteau, D. (2003). Media society: industries, images, and audiences. California: Pine Forge Press.

[6] Abrar, A.N. (2003). Teknologi komunikasi: Perspektif ilmu komunikasi. Yogyakarta: Lesfi

[7] Ramli, M. (2012). Etika dalam penggunaan teknologi informasi dan komunikasi dalam pendidikan. Ta'lim, 2(3).

[8] Ismail, J. (2015). Analisa big data. (Web log post). Diakses dari http://julismail.staff.telkomuniversity.ac.id/analisa-big-data/.

[9] Tekno Kompas. (2016). Begini Cara Herdian Membobol Server Bukalapak dan Tokopedia [artikel berita]. Diakses pada 22 Agustus 2017, dari:

http://tekno.kompas.com/read/2016/07/20/22030007/begini.cara.herdi an.membobol.server.bukalapak.dan.tokopedia.

[10] Romana, F., Faiq, M.H., Ashri, A.F., Rejeki, S. (2017). Dunia big data. Kompas, 14 Mei, 1,15.

[11] CNN Indonesia. (2017). OJK minta fintech lindungi konsumen dan data negara. Diakses dari:https://www.cnnindonesia.com/ekonomi/20170604230717-78-219392/ojk-minta-fintech lindungi-konsumen-dan-data-negara/.

[12] APJII & Mastel Indonesia. (2016). Infografis konklusi survey ekosistem DNA (device, network & apps). Diakses dari: https://apjii.or.id/content /read /39/282/Hasil-Survey-Ekosistem-DNA-Nasional-APJII-dan-MASTEL.

[13] Kearney, A.T. (2015). Lifting the barriers to e-commerce in ASEAN. ASEAN Research Institute. Diakses pada 30 Oktober 2017, dari: https://www.atkearney.co.uk/documents/10192/Lifting+the+Barriers+to+ECommerce+in+ASEAN.pdf/

[14] Google and Temasek. (2016). E-conomy SEA: Unlocking the $200 billion digital opportunity in Southeast Asia. Diakses pada 16 November 2017, dari: https://www.slideshare.net/economySEA/economy-sea-by-google-and-temasek.

[15] Kominfo. (2016). Data dan statistik pelaku e-commerce nasional 2015. Diakses dari: https://statistik.kominfo.go.id/site/data pada 11 November 2017.

[16] Jumiati., Haula, R & Kusumastuti, R. (2017). Why a policy is needed to protect privacy information in Indonesia's e-commerce. Paper presented at IAPA International Conference 2016, UGM Yogyakarta Indonesia.

[17] Kebocoran Go-Jek memuncak, rute sehari-hari pengguna bisa dilacak. (2016, 20 Januari). Kompas Tekno. Diakses dari: https://tekno.kompas.com/read/2016/01/20/16031307/.

[18] Crowley, D., Heyer, P. (2011) Communication in history: Technology, culture, and society. Boston: Pearson

[19] Green, Leila. (2001). Communication, Technology and Society. London, Thousand Oaks, New Delhi: Sage Publications.

[20] Lian, A.Y.G. (2007). Sociological viewpoints on technology: General assumptions and framework. Akademika 71, 61-73.