

# **INFORMATION SOCIETY, DEVELOPMENT OF ICTS (INFORMATION AND COMMUNICATION TECHNOLOGIES), AND NEW ECONOMY**

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## *Abstract*

Information society is fairly regarded as a society where information holds an important role in people's life. This statement brings about a query whether the society that we are currently living now can be regarded as one. While some scholars may agree upon this notion, some may not. Their point of views are described in this paper to somewhat respond to the query.

Information society is commonly connected with the development of ICTs (Information and Communication Technologies) and it is the impact of them on economy, particularly, that will be discussed further in this paper. The so called new economy emerged as a result of development of ICTs. Internet as one of the ICTs product gives way to the development of e-commerce. However with its shortcomings, it is arguable that there are still more work to be done in order to obtain the benefit that development of ICTs can bring to the society.

**Key words: Information Society, ICT, New Economy, E-commerce**

## **Introduction**

Information is undoubtedly society's key to power (Dearnley and Feather 2001, p. 1), it is even regarded so powerful that in the future it could change people to be part of a utopian society (Masuda cited in Crawford 1983). That then leads us to question what kind of society we are living in now. In 1962, Fritz Machlup was one of the first scholars that initiated the concept of information society (Machlup cited by Crawford 1983). It is argued that information is the fundamental characteristic of information society (Dearnley and Feather 2001, p. 11). And the innovation on technology of information also plays a part in shaping our society. In the World War II the development of artificial intelligence machinery gave official form to the concept of information society. And since then it continues to develop, until in the early of the third millennium when internet gave new meaning to the information society (Mattelart 2003, pp. 2-3). In this paper, different views of information society will be reviewed to show that this concept of society is still far from coming to a single agreement. Subsequently, the impact of technology of information and communication, to be precise the internet, will be discussed, in particular the connection it has with the term new economy, or to be précised e-commerce, to see the possibility that it may bring to our society. And then the disparity of access to use internet, refer to digital divide, will also be discussed to show that if indeed internet bring some benefit to our society, there are other factors that may come as an obstacle to achieve it. All of these issues need to be reviewed in order to form a personal opinion concerning the information society.

## **Characteristic of Information Society**

The emergence and the use of the term of information society to identify our contemporary society are still in ongoing debates. The different views from different scholars will be discussed

later, but nevertheless there are some features that are commonly used to characterize information society and they are:

- The growing significance of information in the society especially from economic, cultural and political point of view, where number of workers in information or knowledge sector is dominant.
- The development of information and communications technology (ICT) and its occurrence effect in society.
- The flow of information and the emergence of electronic base networks of economy and society that go beyond the limitation of time and space, that make way for the progression of globalization and networking activities.
- The abundance of information available through multimedia applications, but at the same time is arguable to be more meaningless (Bell, Loader, Pleace and Douglas 2004, p. 115).

### **Different Views of Information Society**

The concept of information society can be traced back from the concept of information economy introduced by Machlup (Machlup cited in Crawford 1983). In 1962 Fritz Machlup published his study of the production of knowledge in the United States. He based his study by grouping business sector that he considered part of knowledge/information production, and that included research and development, education, communication and its media, information machines and information services. By using quantitative study to estimate the portion of this production in the United States Gross National Product (GNP), he found a surprising result that knowledge/information production made up a significant portion of the total GNP of the United States (Machlup cited in Crawford 1983). His founding was considered as an indicator of changes in economic that leads to the construction of information society (Machlup cited in Dearnley and Feather 2001).

Daniel Bell then made observation on the social changes that came as a result in the changes of economy in the United States based on Machlup founding (Bell cited in Dearnley and Feather 2001). He suggests an emergence of a society where number of people working in industry will be decreasing as they will be shift to work in service sector where information is the main part of their work material. This society is to be regarded as post-industrial society, a term that Bell himself later will associated with the term information society (Bell cited in Webster 2006).

Castells (2000) then came up with his idea of a network society. He implies that network society is indeed the same social structure that refers to post-industrial society or information society, but he refused to use this term as he considers them to be not analytical enough. He defines network society as social structure where the key of activities within this society are managed through information networks that are using micro-electronic based technologies. He then refers a particular form of technology that play important role in society, that is internet by stated

“The internet is the fabric of our lives. If information technology is the present-day equivalent of electricity in the industrial era, in our age the Internet could be likened to both the electrical grid and the electric engine because its ability to distribute the power of information throughout the entire realm of human activity. Furthermore, as new technologies of energy generation and distribution made possible the factory and the large corporation as the organizational foundations of industrial society, the Internet is the technological basis for the organizational form of the Information Age: the network” (Castells 2001, p.1).

And his firm idea on how pervasive technology, or to be particular internet, is over the society, lead him to state that to live in the nowadays society means to deal with network society, "...Because we live in the Internet Galaxy" (Castells 2001, p.269).

On the other hand, Webster (2006) also argued the validity of the term of information society in contemporary society. He defined information society in five different perspectives, technological, economic, occupational, spatial and cultural, which later he dismantled it one by one, but in here we will only discuss the technological perspective. From technological perspective, he argued the view that the emerging and development of new information and communication technologies that has started in the late 1970s is adequate to indicate the arrival of information society. He also pointed the measurement problem of accepting this term, what kind of technology gadgets and how many of them should be owned by people to validate it. And another point he disagreed about is the technological deterministic that this term seems to bring, and how technologies are considered to come from the outside of society and were developed without any involvement of society but nevertheless give significant impact to the society (Webster 2006, pp. 11-12). Previously, Lyon (1988) also shared a certain degree of this view. He stated that there is a certainty that the development of technology are connected to social change, but the final outcome doesn't just come from the impact of technology alone but more from the complex interaction between technology and society. So the idea that just technology itself creates changes in society, which he argued to refer to information society, need to be questioned (Lyon 1988, p. 41).

As Dearnley and Feather (2001, p.85) stated, it is not easy to define what information society is, as it is a concept that is still developing. But they also imply that nevertheless the changes that ICTs brings is what basically considered with the concept information society that arises in the late 20<sup>th</sup> century (2001, p. 148-149). So then we will try to see some of these changes.

### **The Impact of Information and Communications Technology (ICT) on Society**

With the arising and developing of new ICTs, it is arguable that the society that we once knew is changing. People's life has been affected by the role of ICTs, and this change has happened and will continue to happen (Hassan 2004, p. 11). And there is no necessity to be a technological determinist to realize that the development of ICTs has brought impacts to people's life (Dearnley and Feather 2001, p. 56). Different opinion about this impact of the new technologies are also shared by different scholars, some are optimist about the benefit that this technology could bring, while some other may share the opposite idea.

All digital computing and communication appliances are included as ICT (Bell et al 2004). We can say that computer plays as the leading actor and when we talk about computer we can't help to think about internet as well. The impact of ICTs can be felt in many aspects in our society and the direction that it leads our life to is undetermined. The ICTs enthusiasts may say that our life has been change to a good direction. For example, with internet people connectivity is greater than ever before, through things such as e-mail people that are separated in different places in the world can easily communicate, it then also can give new meaning to what we consider as neighbor. Neighbor is no longer constraint by place, is no longer just pointing at people that live next to your house, just as Negroponte (1996) said "Everyone's your neighbor". From your family members that live far away from you, people that were listed in your mailing list or

people that share same interest with you can be your neighbor virtually (Negroponte 1996). Negroponte even picture the future of the used of ICTs in our daily life by saying that

“The decades ahead will be a period of comprehending biotech, mastering nature, and realizing extraterrestrial travel, with DNA computers, microrobots, and nanotechnologies the main characters on the technological stage. Computers as we know them today will a) be boring, and b) disappear into things that are first and foremost something else: smart nails, self-cleaning shirts, driverless cars, therapeutic Barbie dolls, intelligent doorknobs that let the Federal Express man in and Fido out, but not 10 other dogs back in. Computers will be a sweeping yet invisible part of our everyday lives: We'll live in them, wear them, even eat them. A computer a day will keep the doctor away” (Negroponte 1998a). Negroponte is an optimist, as he said so himself (1995, p. 227), on what technology can bring to our life, he even said that technology can bring society to a better harmony (1995, p. 230).

Webster (2006) strongly argued Negroponte futuristic point of view by saying that his idea is “intellectually slight, derivative, analytically inept and naïve on almost every count” (2006, p. 35). Nonetheless some people may not be on the same mind with Webster, others also share Negroponte enthusiasm, for example Bill Gates (1995) that stated “... I’m optimistic about the impact of the new technology. It will enhance leisure time and enrich culture by expanding the distribution of information ...” (Bill Gates cited in Preston 2001, p. 5).

In economy, one of the many impacts of the uprising of information technology is the establishment of the new economy at global level around the end of twentieth century. Castells pointed out two main industries where new economy first formed; they were finance and information technology industries (Castells 2000, p.148). Since the attention of this part of paper is concerning the information technology, we will focus more on the development of information technology industries. Tapscott (1998) imply that the center progress of information technology industries will be the development of companies that rely on the use of internet. In the case of the United State, the growth of internet-related industry has been paid attention to. One of the examples is the study made by the Center for Research in Electronic Commerce (CREC) in 1999; which were also discussed by Castells (Castells 2000). In this study they categorized internet-related industry into four sectors; infrastructure sector which include companies that provide infrastructure of internet, application sector which is formed by corporation that develop internet infrastructure applicants, intermediary sector which refer to companies that gain profit not from direct transaction but from activities such as advertising in the internet website, and the last one is internet commerce sector where companies made transaction through website, such as Amazon, which also refer as e-commerce. As a result they found that there was a significant increasing in internet-related industry revenue in the United Stated between 1998 until 1999, with major increase came from the e-commerce sector, with growth as much as 127%. They also found an increasing number of internet-related jobs in this period of time, from 1.6 million to 2.3 million, which major increase also come from the e-commerce sector (CREC 1999). This information and others studies observed by Castells leads him to suppose that in the United State the new economy induces an economic growth in productivity (Castells 2000, p. 161). This affirmation was argued by Garnham (2001). He said nevertheless there is no enough evidence to support this argument. The rise of the United Stated productivity was not necessarily happen because of the impact of ICTs and it could be explained with other reason. He also doubt the efficiency of the use of ICTs by pointing out to the tendency that happen amongst worker in

information sector, they that should have gain more benefit of the use of ICTs but instead undergo a tendency of longer working hours (Garnham 2001). Nonetheless Castells (2000, p. 162) maintain his optimism by stated that although new economy initially emerge in the United State, it will rapidly spreading into the rest of the world. The United State without doubt is a country that belong into category of develop countries, so to contrast this we shall see the development of new economy in a developing country, to be particular in this paper Indonesia will be used as an example. In this case, the development of e-commerce as an indicator of new economy will be used.

In 1994, internet was first introduced in Indonesia by an academic institution (Boerhanoeddin 2008). In e-commerce, a pioneer company of e-commerce development industry in Indonesia is an online bookstore, which also inspired by Amazon, called Sanur. In 2002, Sanur has up to 2,500 transactions per month with numbers of customer reached 11,000 customers, and this number is hoping to continue to grow along with other emerging online stores (Boerhanoeddin 2008). But on the other hand, according to survey in 2000 done by Forester Research (cited in Boerhanoeddin 2008), the revenue of e-commerce transactions in Indonesia are only USD 100 million or just 0.026% from the total transactions in the world that reached USD 390 billion. Boerhanoeddin (2008) then described five factors that involved in reason why e-commerce is not making a large progress in Indonesia. The first one is infrastructure, which is argued to be the most essential aspect. Indonesia is an archipelago country, so geographically it is a challenge to build internet infrastructure across the country. Other aspect that can also be included in this category is telephone and internet access fees that are relatively expensive compare to other countries. The second factor is awareness. Most internet users in Indonesia consider internet just as a communication device, so e-commerce activities has not been paid particular attention yet. Security issue, where most Indonesian users still has low trust on the safety of doing e-commerce transaction in Indonesia, come as the third factor. Culture and habits come as the forth factors. Indonesian citizen average income is considerably low, estimated at USD 774.51 per year in 1999, so computer is still considered as luxurious equipment. Indonesian also have habit and custom to go shopping with family and friends, they consider this activity quite similar to recreation, so they prefer to do shopping in traditional way. As an addition why they hesitate to shop via internet is that they are concerned with the quality of goods that they want to buy, so they prefer to see them first before buying it. The last factor is e-commerce provider, which can be divided as three groups, merchant, e-commerce facilitator, and banks. Only few numbers of merchants and banks in Indonesia already join the market of e-commerce, and the reason for their reluctance varied from concern that this sector of business won't give much contribution to their revenue until the unwanted interference of the so-call 'middleman' in the process of business in Indonesia. Then we can conclude that the development of e-commerce in Indonesia in year 2000s was not spreading rapidly, but even so the significant of this information revolution is apprehended by Indonesia's government and some measurement, such as the construction of internet infrastructure, is not being done to promote this sector of economy (Boerhanoeddin 2008).

Fast forward to year 2017, it seems like this tendency remain somewhat persistent. As Freischlad (2017) wrote,

“Ecommerce in Indonesia has a high growth potential. All the ingredients are there. Most importantly, it's a young, populous, and increasingly affluent nation. That said,

the pace at which consumers are taking advantage of online shopping currently still falls somewhat behind expectations.”

As per report issued by Macquarie Research, intelligence unit of investment advisory firm Macquarie Capital, last year Indonesia’s e-commerce grew at 65% while the expected rate was 80%. Based on their investigation, one reason behind this fact is somewhat similar with what was advised by Boerhanoeddin (2008), which is the preference of Indonesian to see the goods they want to buy before buying them. Based on survey that was done on 1800 respondents from various cities and socio-economic backgrounds by Indonesia’s ecommerce association (iDEA) confirmed that they prefer to check the goods before buying them. Other reasons mentioned on this survey as to why Indonesians are still reluctant to shop online is the fear of fraud and the preference of shopping offline. In addition, respondents that had shop online before are hesitating to give the experience another chance due to the disappointment of accepting goods that were not as what they had expected. Nevertheless 83 percent of respondents due admit that shopping online is more convenient and consume less time (Freischlad 2017).

So in the case of Indonesia, the new economy is still not developing rapidly as what Castells had been optimist for. And from this founding we can argue that there are many factors involve supporting the successful of an implementation of a new technology in society, and the emergence of internet doesn’t instantly bring significant changes. Actors in the society should also play a role to its realization. Castells (2000) doesn’t overlook this kind of issue as well by saying that new economy nevertheless isn’t perfect; its expansion is unequally distributed in different countries and within a country itself. Even so, anyone anywhere is influenced by this new economy, whether in the form of exclusion or inclusion, and this inclusion border is different based on institution, politic and policies that apply in one society. So in the end he still holds an optimist view of the future possibility the new economy can bring to the society (Castells 2000, p. 161).

In relation to e-commerce, from quite a unique perspective, Negroponte (1998b) shares some of this optimistic view as well. He sees the convenient aspects of using e-commerce in everyday life. He implies that by shopping trough the internet people can save the inconvenience from having to carry the goods back by themselves. He used the method of going to a bookstore to buy a certain book as an example and how he stated that it was possibly the worst method to do because we have to consider elements such as weather condition, time, energy, cost, and as addition the availability of the book, so it is more convenient to just log on and order from website such as Amazon (Negroponte 1998b).

These optimisms may lead us to believe that there is some benefit that internet can bring to our life, but then it lead us to question whether all people in the society can share this benefit.

### **The Digital Divide**

One of main problem dealing with ICTs is the problem of accessing it, in particular the internet, which then gives rise to term digital divide. The differences between people that have access to the internet and people who don’t have access to it refer to the term digital divide (Bell et al, 2004). In her study, Pippa (2001) defined that the concept of digital divide covered three aspects, which is global divide, social divide and democratic divide. Global divide refers to the disparity of accessing internet of people in develop and developing countries. The difference of amount,

rich or poor, of information that people get in one country is what the social divide related to, and democratic divide indicate the differentiation of people, in online society, to take part in public life by using the digital technologies and information (Pippa 2001, p. 4). Here we will discuss more about the global divide and social divide.

According to International Telecommunication Union (2004), although in the past ten years the digital divide gap between develop and developing countries is decreasing, nevertheless in 2004 the number of internet users in develop countries is eight times than the number of users in developing countries. There are also estimated one billion people in the world that has no connection to any form of ICTs. Even within one country that has access to internet, this access is not uniformly distributed. Pippa (2001) pointed that different level of earning, professions, educations, gender and generation lead to social inequality in accessing internet. People with higher level of earning, profession and education, also younger generation tend to have more access to internet, while number of women accessing the internet is generally lower than man.

As per recent study done in Indonesia by idEA (2016), Indonesia's Ecommerce Association, this digital divide is somewhat stand stills. The number of internet users in Indonesia is only 29% out of the total population. Nevertheless the report gave an optimistic view of overall future of e-commerce's development in Indonesia.

## Conclusion

In contemporary society. it is argued that information holds an important role. This lead some scholars to suggest that we are now living in the information society and some others argue it. But as Dearnley and Feather (2001, p. 85) consider it as 'an all-embracing concept" where one can perceive it differently than others, so it is better to also consider other factor as well. As information society generally links with the development of ICTs, it is the impact, or to be precise the benefit in daily life, economy, and other aspects, that ICTs has on society that we should be more concerned about. And as there is a possibility that ICTs is bringing some benefit if it is properly paid attention to, then we can be slightly optimist towards this concept. But nevertheless, in current condition where there are still many people in the world that has no access to internet, and even in a country that do have access there's still social inequality that need to be concerned about, then we can conclude that there is more work to be done to obtain the benefit that the information society can bring.

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