Available online www.jsaer.com

***Journal of Scientific and Engineering Research*, 2020, 7(7):210-216**

Research Article

ISSN: 2394-2630
CODEN(USA): JSERBR

The Effect of ICT on Society

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Abstract ICT (information and communications technology or technologies) is an umbrella term that includes any communication device or application, encompassing: radio, television, cellular phones, computer and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as videoconferencing and distance learning. ICTs are often spoken of in a particular context, such as ICTs in education, health care, or libraries. This research measure the effect of ICT on Malaysia society, using the case of two major of positive and negative and the important of ICT to society. What is the important of ICT and what the effect of ICT to society. That is the research of effect side of ICT in education, workplace and labour market, private life and society. This study effect of ICT lens looks at how our life has been changed, for better and for worse by the effect of the ICT. It includes both positive effect and negative effect and look at how society is affected. The findings of this research that there causal relation between ICT and society.

Keywords ICT; effect; society; information technology; communication, MSC

Introduction

In the past few decades there has been a revolution in computing and communications, and all indications are that technological progress and use of information technology will continue at a rapid pace. Accompanying and supporting the dramatic increases in the power and use of new information technologies has been the declining cost of communications as a result of both technological improvements and increased competition. According to Moore's law the processing power of microchips is doubling every 18 months. These advances present many significant opportunities but also pose major challenges. Today, innovations in information technology are having wide-ranging effects across numerous domains of society, and policy makers are acting on issues involving economic productivity, intellectual property rights, privacy protection, and affordability of and access to information. Choices made now will have long-lasting consequences, and attention must be paid to their social and economic impacts. One of the most significant outcomes of the progress of information technology is probably electronic commerce over the Internet, a new way of conducting business. Though only a few years old, it may radically alter economic activities and the social environment. Already, it affects such large sectors as communications, finance and retail trade and might expand to areas such as education and health services. It implies the seamless application of information and communication technology along the entire value chain of a business that is conducted electronically. The following sections will focus on the impacts of information technology and electronic commerce on business models, commerce, market structure, workplace, labour market, education, private life and society as a whole. This paper is present the effect of ICT on society with positive and negative effect.

Issue on Society

In the rapidly changing technological environment in which we live; ethical issues are increasingly been raised, demanding attention and efforts towards resolution. Of particular interest for us and the information society are those related to information communication technologies (ICTs). The explosive growth of ICT and the use of its enabling technologies have had major impacts on society and thus raise serious ethical questions for individuals and organisations. These issues have been raised to a new and often perplexing level which has greatly affected the society in various ways. The pressing issues raised by ICT include the invasion of individual and corporate privacy, intellectual property rights, individual and societal rights, values preservation and accountability for the consequences arising from the use of ICT, etc. These issues have thrown up important challenges in the area of employment; working conditions and individuality. However, not much progress has been made in addressing these issues and challenges associated with ICT. This is because of lack of clear understanding of the issues involved. In this chapter, we will explore effect of ICT on society and social issues/challenges that surround the use of ICT.

- Identify the positive and negative effect of ICT in education of society using ICT.
- Identify ethical issues/challenges and how the use of ICT has greatly invaded individual privacy and the protection of intellectual property.
- Analyse the ICT use in society in daily life.
- Evaluate the benefits MSC to society on the protection of individual and collective privacy, information rights and intellectual property rights.

The Positive Effect on Society

Education

The positive effect of ICT is on education. The advances in information technology (ICT) will affect the craft of teaching by complementing rather than eliminating traditional classroom instruction. Indeed the effective instructor acts in a mixture of roles. In one role the instructor is a supplier of services to the students, who might be regarded as its customers. Effective instructor occupies another role as well, as a supervisor of students, and plays a role in motivating, encouraging, evaluating, and developing students. For any topic there will always be a small percentage of students with the necessary background, motivation, and self-discipline to learn from self-paced workbooks or computer assisted instruction. For the majority of students, however, the presence of a live instructor will continue to be far more effective than a computer assisted counterpart in facilitating positive educational outcomes. The greatest potential for new information technology lies in improving the productivity of time spent outside the classroom. Making solutions to problem sets and assigned reading materials available on the Internet offers a lot of convenience. E-mail vastly simplifies communication between students and faculty and among students who maybe engaged in group projects.

Although distance learning has existed for some time, the Internet makes possible alarge expansion in coverage and better delivery of instruction. Text can be combined with audio/video, and students can interact in real time via e-mail and discussion groups. Such technical improvements coincide with a general demand for retraining and upskilling by those who, due to work and family demands, cannot attend traditional courses. Distance learning via the Internet is likely to complement existing schools for children and university students, but it could have more of a substitution effect for continuing education programmes. For some degree programmes, high-prestige institutions could use their reputation to attract students who would otherwise attend a local facility. Owing to the Internet's ease of access and convenience for distance learning, overall demand for such programmes will probably expand, leading to growth in this segment of e-commerce.

i. Workplace and Labour Market

The other positive effect is on workplace place and labour market. Computers and communication technologies allow individuals to communicate with one another in ways complementary to traditional face-to-face, telephonic, and written modes. They enable collaborative work involving distributed communities of actors who seldom, if ever, meet physically. These technologies utilize communication infrastructures that are both global and always up, thus enabling 24-hour activity and asynchronous as well as synchronous interaction among

individuals, groups, and organizations. Peer-to-peer relations across department lines will be enhanced through sharing of information and coordination of activities. Interaction between superiors and subordinates will become tenser because of social control issues raised by the use of computerized monitoring systems, but on the other hand, the use of e-mail will lower the barriers to communications across different status levels, resulting in more uninhibited communications between supervisor and subordinates.

That the importance of distance will be reduced by computers and communication technology also favours telecommuting, and thus, has implications for the residence patterns of the citizens. As workers find that they can do most of their work at home rather than in a centralized workplace, the demand for homes in climatically and physically attractive regions would increase. The consequences of such a shift in employment from the suburbs to more remote areas would be profound. Property values would rise in the favoured destinations and fall in the suburbs. Rural, historical, or charming aspects of life and the environment in the newly attractive areas would be threatened. Since most telecommuters would be among the better educated and higher paid, the demand in these areas for high-income and high-status services like gourmet restaurants and clothing boutiques would increase. Also would there be an expansion of services of all types, creating and expanding job opportunities for the local population.

ii. Private Life and Society

The next positive effect of ICT on society is with private life and society with increasing representation of a wide variety of content in digital form results in easier and cheaper duplication and distribution of information. This has a mixed effect on the provision of content. On the one hand, content can be distributed at a lower unit cost. On the other hand, distribution of content outside of channels that respect intellectual property rights can reduce the incentives of creators and distributors to produce and make content available in the first place. Information technology raises a host of questions about intellectual property protection and new tools and regulations have to be developed in order to solve this problem. Many issues also surround free speech and regulation of content on the Internet, and there continue to be calls for mechanisms to control objectionable content. However it is very difficult to find a sensible solution. Dealing with indecent material involves understanding not only the views on such topics but also their evolution over time. Furthermore, the same technology that allows for content filtering with respect to decency can be used to filter political speech and to restrict access to political material. Thus, if censorship does not appear to be an option, a possible solution might be labelling. The idea is that consumers will be better informed in their decisions to avoid objectionable content.

The rapid increase in computing and communications power has raised considerable concern about privacy both in the public and private sector. Decreases in the cost of data storage and information processing make it likely that it will become practicable for both government and private data-mining enterprises to collect detailed dossiers on all citizens. Nobody knows who currently collects data about individuals, how this data is used and shared or how this data might be misused. These concerns lower the consumers' trust in online institutions and communication and, thus, inhibit the development of electronic commerce. A technological approach to protecting privacy might by cryptography although it might be claimed that cryptography presents a serious barrier to criminal investigations. It is popular wisdom that people today suffer information overload. A lot of the information available on the Internet is incomplete and even incorrect. People spend more and more of their time absorbing irrelevant information just because it is available and they think they should know about it. Therefore, it must be studied how people assign credibility to the information they collect in order to invent and develop new credibility systems to help consumers to manage the information overload. The last positive effect is Computers and communication technologies also promote more market-like forms of production and distribution. ICT helps today’s busy families stay connected with each other. Parents can check in with kids at all times to see where they are and what they are doing. Kids can easily reach parents if there is an emergency or a problem.

iii. Business Model, Commerce and Market Structure

The last positive effect of ICT society is on business models, commerce and market structure. Infrastructure of computing and communication technology, providing 24-hour access at low cost to almost any kind of price and

product information desired by buyers, will reduce the informational barriers to efficient market operation. This infrastructure might also provide the means for effecting real-time transactions and make intermediaries such as sales clerks, stock brokers and travel agents, whose function is to provide an essential information link between buyers and sellers, redundant. Removal of intermediaries would reduce the costs in the production and distribution value chain. The information technologies have facilitated the evolution of enhanced mail order retailing, in which goods can be ordered quickly by using telephones or computer networks and then dispatched by suppliers through integrated transport companies that rely extensively on computers and communication technologies to control their operations. Nonphysical goods, such as software, can be shipped electronically, eliminating the entire transport channel. Payments can be done in new ways. The result is disintermediation throughout the distribution channel, with cost reduction, lower end-consumer prices, and higher profit margins.

The Negative Effect on Society

i. Education

The negative effect ICT to society in education is student that use ICT without control wills effects the academic. Student will lose concentrate with study because they always use the ICT and technology to play games, watching movie and etc. ICT will affect to their studies when student don't control it. . Students, and sometimes teachers, can get hooked on the technology aspect, rather than the subject content. Just because a topic can be taught via ICT, does not mean that it is taught most effectively via ICT. This is because teacher cannot make sure that information that provide to the student effective or not.

ii. Workplace and Labour Market

The negative effect ICT on organization in society is the cost of using ICT may cause a number of problems for organisations. A lot of ICT hardware and software is expensive, both to purchase and to maintain. An ICT system usually requires specialist staff to run it and there is also the challenge of keeping up with ever-changing technology. These extra costs should be offset by the positive effects of using ICT, but if an organisation gets its cost-benefit analysis wrong it may lose money.

iii. Private Life and Society

The negative effect ICT to private life and also keep families apart. Imagine today's family gathered in the kitchen for dinner. Maybe the TV is on, a laptop on the kitchen counter and everyone has their phone with them. Mom and dad are keeping an eye on emails even though the work day is technically over. So this family is physically together, but they are not totally focused on and paying attention to each other. They are at least partially attentive to a ping or a beep indicating that there is a new text message, email or missed call. One of the largest negative effects of ICT can be the loss of a person's job. This has both economic consequences, loss of income, and social consequences, loss of status and self-esteem. Job losses may occur for several reasons, including: Manual operations being replaced by automation, e.g. robots replacing people on an assembly line. Job export, e.g. Data processing work being sent to other countries where operating costs are lower. Multiple workers being replaced by a smaller number who are able to do the same amount of work, e.g. A worker on a supermarket checkout can serve more customers per hour if a bar-code scanner linked to a computerized till is used to detect goods instead of the worker having to enter the item and price manually. The other negative ICT is reduced personal interaction. Being able to work from home is usually regarded as being a positive effect of using ICT, but there can be negative aspects as well. Most people need some form of social interaction in their daily lives and if they do not get the chance to meet and talk with other people they may feel isolated and unhappy. The last negative effect is reduced physical activities in daily life. ICT is that users may adopt a more sedentary lifestyle. This can lead to health problems such as obesity, heart disease, and diabetes. Many countries have workplace regulations to prevent problems such as repetitive strain injury or eyestrain, but lack of physical exercise is rarely addressed as a specific health hazard.

iv. Business Model, Commerce and Market Structure

The other negative effect on organization also about privacy and security of organization, this is always a problem for any organisation that uses ICT. Data must be kept secure, Internet connections must be protected from attack, new viruses and other forms of malware are released nearly every day. Organisations will usually have legal obligations to protect data such as customer information. Even if the organisation does not have to comply with a specific data protection law it will usually be in the organisation). The cost of using ICT may cause a number of problems for organisations. A lot of ICT hardware and software is expensive, both to purchase and to maintain. An ICT system usually requires specialist staff to run it and there is also the challenge of keeping up with ever-changing technology. These extra costs should be offset by the positive effects of using ICT, but if an organisation gets its cost-benefit analysis wrong it may lose money.

The Multimedia Super Corridor (MSC) on Society

The Multimedia Super Corridor (MSC Malaysia) is the government and major national initiative that was designed as a catalyst for the growth of the information and communication technology (ICT). These projects are aimed to transform the Malaysian economy into a knowledge-based economy with ICT advancement in line with the country's ambitions in achieving fully developed status by the year 2020. The initiative led many ICT projects across the country aimed at transform Malaysian society through the use of ICT including governance, education, healthcare, industries, and commerce. New legislation was introduced to support the development of the MSC and includes the following:

Under MSC Malaysia, four key flagship applications were launched to improve social conditions and provide economic benefits. The government investments for the socio-economic benefit are still have limited productivity gains due to implementation process requires the cooperation of multiple ministries / agencies. The four key flagship applications as stated in MSC Malaysia website (msc.com, 2011) are;

i. E-Government - Aimed to improve transparency and responsiveness to the public. Yet to reach full potential due to limited number of transactions 97 available online as well as issues in infrastructure, change management and integration of legacy systems. Cooperation among agencies such as MEWC, MAMPU and other agencies need to be strengthen to ensure that implementation of e-Government applications are successful. The benefits of e-government:
   - Improved transparency and responsiveness of Government towards public.
   - Cost savings and improve information flow and processes within Government.
   - Time savings and improve speed and quality of services to the public.

ii. MyKad – The objective is to provide a secure ID platform for private and Government transactions and processes. So far this projects has attracted many private applications but still limited of public applications, e.g. driver's license, has been minimal. This is because access to infrastructure, e.g. card readers, lack of buy-in from other agencies and poor public perception of security limits public usage of other applications on MyKad. Multiple agencies such as NRD, MAMPU, Pos Malaysia and NITC are required to ensure that MyKad application successful. The benefits of MyKad to society:
   - Secure ID platform for various public and Government transactions and processes.
   - Cost savings as avoid issuing multiple cards, reduction of paperwork and fraud.
   - Time savings and convenience, single source of personal information.

iii. Smart School – This Flagship designed to promote ICT literacy and encourage creativity and self-learning in education. Flagship has been enhanced based on learning from pilot and full roll-out expected by 2010 to make all school are smart school. However, engagement and communication between different stakeholders within MOE could be improved to speed up full roll-out of smart school. The benefits of Smart School to society:
   - Promotion of ICT literacy, encourage creativity and self-learning amongst teachers and students.
   - Cost savings and more efficient administration of schools.
   - Time savings as reduce paperwork and administrative duties.

iv. Telehealth - Launched to improve the overall standard of healthcare and provide more information to enable the public to better manage their health. Project initiatives under this flagship such as Teleconsultation, My Health portal and Continuous Professional Development programs have been launched but poor access to infrastructure and under-developed critical enablers limiting use of Telehealth projects. Cooperation between different stakeholders with MOH and MEWC essential for successful implementation of Telehealth. The benefits of Telehealth to society:
   - Improving overall standard of healthcare, increase public access to information and manage own healthcare.
   - Cost savings and improved productivity of public and medical professionals.
   - Time savings and save multiple visits to hospitals.

New legislation was introduced to support the development of the MSC and includes the following:

- Computer Crimes Act 1997.
  The main reason for enforcing this act is to ensure that misuse of computer can be overcome. Misuse of computer will be an offence in Malaysia. This act is enforced on 1st June 2000(Multimedia Development Corporation, 1996-2012).
- Digital Signature Act 1997.
  On 1st October 1998, this act has been enforced to help preventing on-line transaction fraud. It will provide both licensing and regulation of Certification Authorities (CA). Signor Identity certification and Digital Signature will be issued by CA. Digital Signature has become legally valid and enforceable as a traditional signature (National IT Council, 2012).
- Telemedicine Act 1997.
  This act is still not enforced yet and amendment is still being made. The act states that only registered doctor can practice telemedicine. Other healthcare providers must obtain license to do telemedicine. This is to avoid anything that related with medical purpose from being misuse by doctors or patients, since the health industry has evolved into a new level (National IT Council, 2012).
- Communication and Multimedia Act 1998.
  This act is the main pillar for other cyber laws in Malaysia. It will explain each roles and responsibilities of Internet Service Providers. It also stated that there will be no filtering in accessing the Internet in Malaysia. A specialize government body in Information communication Technology (ICT) is also been established by using this particular act, which is the Communication and Multimedia Commission. It is already being enforced by the government on 1st April 1999 (Multimedia Development Corporation, 1996-2012).
- In addition, the Copyright Act 1987 was amended to take account of recent developments in ICT.
  This act is amendment from Copyright Act 1987. It will be protecting the copyright works from unauthorized copying and/or alteration. Since technology is always evolved, this act helps to protect copyright works in new forms. The enforcement of the act has been done on 1st April 1999 (Multimedia Development Corporation, 1996-2012).
- Personal Data Protection Act 2010.
  Personal Data Protection Act 2010 is an act to regulate the processing of personal data in commercial transactions. However, this will not be applicable to the government both federal or states and data processed outside of Malaysia. This act said to be enforced on 1st January 2013 but it has been extend to a different date (Secure IT Solution, 2011).

Conclusion

The result of this study indicates that ICT has positive and negative effect to the society. The ongoing computing and communications revolution has numerous economic and social effects on modern society and requires serious social science investigation in order to manage its risks and dangers. Such work would be valuable for both social policy and technology design. Decisions have to be taken carefully. Many choices being made now will be costly or difficult to modify in the future. We also studied the future of our society with more sophisticated developments in ICT and its applications in our society. We also discussed the negative effects of

ICT like loss of privacy, unauthorized access to important data. But we believe benefits from ICT far outweigh the negative aspects of information technology. As we discussed we can access information for our studies or research very quickly these days. Also the global communications have become unbelievably quick through email services. We strongly believe in future also information technology would bring much more conveniences in our lives than any negative impacts. As we can see MSC Malaysia goals and objectives have shown a favourable achievement and success at different stages that have benefit the national economy and social well-being.

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