

DIGITAL SOCIETY AND PANDEMICS: AN OVERVIEW

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Abstract. Life becomes a new normal during pandemics for everyone. Life becomes increasingly digital as we incorporate them into every aspect of our lives, most notably shopping and education. During this period, technology and pandemic are a natural match. When pandemics strike, information and communication technology add value to society. The term "digital society" refers to a society that makes use of digital technologies on a regular basis. The purpose of this study is to provide an overview of how the digital society functions daily, particularly during pandemics. Additionally, this review article discusses the concepts and characteristics of a digital society, including the usage of digital technology tools, the evolution of tools and digital technology utilised prior to and during pandemics, and the changes in lifestyles in a digital society.

Keywords: Digital Society, Pandemic, Digital Technology, Information and Communication Technology

Abstrak. Hidup menjadi normal baru selama pandemi untuk semua orang. Hidup menjadi semakin digital saat kita memasukkannya ke dalam setiap aspek kehidupan kita, terutama belanja dan pendidikan. Selama periode ini, teknologi dan pandemi adalah hal yang wajar. Saat pandemi melanda, teknologi informasi dan komunikasi memberi nilai tambah bagi masyarakat. Istilah "masyarakat digital" mengacu pada masyarakat yang memanfaatkan teknologi digital secara teratur. Tujuan dari penelitian ini adalah untuk memberikan gambaran tentang bagaimana masyarakat digital berfungsi sehari-hari, khususnya selama pandemi. Selain itu, artikel ulasan ini membahas tentang konsep dan karakteristik masyarakat digital, antara lain penggunaan alat teknologi digital, evolusi alat dan teknologi digital yang digunakan sebelum dan selama pandemi, serta perubahan gaya hidup masyarakat digital.

Kata Kunci: Masyarakat Digital, Pandemi, Teknologi Digital, Teknologi Informasi dan Komunikasi

INTRODUCTION

Digital technology advancements are transforming society, economy, culture, and way of life (VSNU, 2016; Friedrich Ebert Stiftung, 2017). The impact of digital technology advancements can be noticed in the surrounding society's daily life, such as digital applications in employment, education, and the way social activities are conducted (Dufva and Dufva, 2018). Individuals and society's reliance on digital technology facilities needs a variety of issues regarding how we should connect and communicate with one another, as well as how to use digital technology and communication channels most effectively and without causing detrimental impacts. This condition creates the perception that society has entered a digital era, in which digital technology is used at all levels of society.

Additionally, the term "Digital Citizen" refers to the concept of a digital society (Coudry, et.al., 2014; McCosker, et.al., 2016; Katzenbach and Bachle, 2019). Ribble (2008), and Vasilenko and Kornilovich (2021) asserts that the digital society is one that values tolerance and mutual understanding highly. Additionally, the digital community understands one another's cultural and societal issues surrounding digital technology, engages in ethical behaviour, is accountable for technology and information, and has a favourable attitude toward technology use. Obviously, in a digital world, everyone must possess all these characteristics. These characteristics, however, are not accessible to all segments of society, notably those living in third world and developing countries, since digital technology is still mostly restricted to rural areas.

Today's civilization is regarded as a digital society since it is reliant on digital technologies in everyday life (Che Noh et.al.,

2017; Hintz, et.al., 2017; Katzenbach and Bachle, 2019; Nguye and Tran, 2022). The advancement of more sophisticated information and communication technology culminated in the birth of the digital society. The digital society as we know it today began fundamentally with the information society of the 1970s (Bell, 1974; Dijk, 2006; Redshaw, 2020). A post-industrial civilization, according to Daniel Bell's views, began to emerge following World War II. In the post-industrial period, information and communication technology development has been extraordinarily rapid, especially in economic and social domains such as highly skilled specialised scholars and the developing economy. Communities in the post-industry evaluate and process data to make judgments in a variety of industries. The decision-making process's reliance on information results in the establishment of a network of people who are perpetually in need of information. This condition has resulted in the development of an information society, in which community members are reliant on the information they get.

Additionally, the information society develops in lockstep with the industrial revolution (Dijk, 2006; Gribanov and Kovalenko, 2018). Industrial progress reinforces society's reliance on accurate, timely, and accurate information to meet its own economic development objectives. Individuals and society build networks in response to the demand for timely, precise, and correct information. Castells (2010) coined the term "network society" for this phenomenon. To gain the most up-to-date information, networking communities communicate with one another via existing networks or platforms. The communication network of the community exposes the community to recent technology applications. As a result, it allows for the adoption of new technologies by the

community for the purpose of obtaining timely and accurate information.

However, the landscape of information and communication technology development or advancement has been unequal throughout the world, most notably in third world and emerging countries, owing to their policies and capacity to organise existing technology for local community use (Okwuchukwu and Chinonye, 2014; Beaunoyer, Dupéré and Guitton, 2020). One of the criteria that determine whether a technology can be fully utilised in a country or vice versa is society's readiness to adopt digital technology and have experts in its use. In general, society uses digital technology because it is simple to operate and access, allowing individuals to incorporate technology into their daily lives, enterprises, and social activities. Apart from laptops, tablets, and smart televisions, digital technology that is simple to use and are used in daily routines, such as smartphones, is an example of common digital technology used by society.

Additionally, the information society expands their social opportunities. With a large network of interconnected communities, the community can enjoy a diverse social life both locally and internationally. This has a beneficial effect on people's social networks, such as access to knowledge and technology. This enables the community to take part in a variety of economic, social, political, and educational activities conducted entirely online. Additionally, members of the community can enrol in a variety of free online courses, such as learning the principles of starting a business without making a significant investment. Following that, promote your own craft products on a variety of sites, including Shopee, Carousell, Lazada, and Mudah.my. As a result, digital technology is critical to society's progress.

However, the evolution of digital technology has unavoidably produced ramifications. While technological advancements are critical for economic and social development, they have resulted in the automation of certain employment (VSNU, 2016; Friedrich Ebert Stiftung, 2017). As a result, many workers have been laid off because of job automation. Apart from that, one of the challenges arising because of the evolution of digital technology is the requirement for privacy protection, which impacts economic operating systems, social institutions, and the public sector (Katzenbach and Bachle, 2019). Similarly, Ribble and Bailey (2004) stated in their study that a digital society that makes use of digital technology must possess knowledge on how to manage digital technology and behaviour as they change.

Technological improvements in information and communication have become unsustainable. To be sustainable, information and communication technology must consider human ecology, social dynamics, and natural resources (Awad, 2022). While advances in information and communication technology have benefited community life, they have also had a detrimental effect on growth. Advances in information and communication technology have the potential to mitigate the negative impact on persons who travel frequently for a variety of reasons, most notably business-related travel. Internet communication has the potential to significantly reduce long-distance travel, which benefits environmental sustainability.

However, while Internet communication technology facilitates the process of performing any task online, it plays a limited role in ensuring the sustainability of nature. This is because a variety of factors contribute to the inadequacy of information and communication technologies in terms of sustainability. The process of creating tools

utilised in technologies such as computers contributes to the information and communication technology industry's unsustainable nature. The impact on nature caused by developing technological tools for technological use is higher than the harm caused by the technology's original purpose.

The digital civilization makes effective use of the available technologies. If individuals or society had not employed this technology, the current development of information and communication technology modernisation would not have occurred. Today's society, as a technology consumer, is a critical stakeholder in the development of information and communication technology. Numerous innovative initiatives involving the use of technology, such as e-heritage in the tourism sector, have been developed (Go, Lee and Russo, 2003; Ikeuchi et al., 2022). The oral and visual assets of the tradition have been included in the e-heritage and are available for free and paid viewing. In turn, developing the e-legacy ensures that the tradition's heritage is conserved and accessible to future generations.

However, if a community lacks access to technology, creative activities requiring digital technology are impossible to conduct. This is because of the digital divide, which is driven by a variety of factors, including economic, social, geographical, and cultural factors, as well as a country's attitude toward technology adoption (Pick, Sarkar and Parrish, 2020). When a country's society is not connected to digital technology, it will be unable to change. Also unachievable is knowledge on how to use digital technologies. As a result of this predicament, the public lacks awareness about digital technologies.

Additionally, the digital society and its content are linked. The intended content is composed of data, information, knowledge, and documentation generated by digital technology in a digital society (Paul and

Aithal, 2018). Individuals or communities make use of data or information that is pertinent to them or to the larger society. They will not use the service if the digital technology is irrelevant to them or to society. Additionally, the digital community creates its own periodicals using social media and digital devices such as laptops, cell phones, and DSLR cameras (Schradie, 2011; Jati, 2019). More to social media articles, they generate new knowledge or ideas through e-books.

Moreover, the digital society's knowledge management efforts must be coordinated. Knowledge management allows consistency and ease of management of data, information, and knowledge. Knowledge management comprises several steps, including spreading knowledge, acquiring knowledge, improving existing knowledge, and developing new knowledge (Basri, et. al., 2019). However, without people, processes, and technology, knowledge management practises will fail to be successful (Dutta and Banerjee, 2016). Dilip Bhatt (2000) estimates that individuals contribute 70% of the effort to knowledge management, while processes and technology contribute 20% and 10%, respectively. As a result, combining these three dimensions results in effective knowledge management, which is especially important in today's digital world.

Stakeholders such as society, technology, content, and knowledge management all contribute significantly to the development of digital technology. The creation of a digital society is impossible without the involvement of stakeholders. Additionally, the digital society's use of digital technological equipment provides an insight into the digital era's way of life (Petrovich and Charikova, 2022).

METHOD

The method used in this study was a literature review. Literature reviews provide numerous benefits. First, they facilitate the integration of knowledge by compiling information from multiple sources into an exhaustive review (Snyder, 2019). This compilation is helpful for academics, policymakers, and practitioners seeking an overview of the field. Second, literature reviews provide the basis for the critical evaluation and assessment of existing research. By identifying the literature's strengths, weaknesses, and deficits, researchers can contribute to ongoing scholarly discussions and suggest avenues for future study. Thirdly, literature evaluations increase the credibility and rigour of research initiatives. By basing their work on an in-depth comprehension of the existing literature, researchers can contextualise their findings and ensure that their contributions are novel and substantial (Gomez-Luna et al., 2014).

Digital Society And Pandemic. This section focuses on the three characteristics of a digital society during pandemic. Among the characteristics of a digital society is a society that uses digital technology equipment, adapts to changes in the digital technology used and faces the advent of the Internet of Things (IOT).

Berg and Hepp (2018) found that the digital community uses various platforms to communicate and share stories using digital technology. Platforms such as Facebook and Skype were used based on the available areas due to network restrictions in areas with no internet network coverage, especially in developing countries. Furthermore, digital technology equipment is utilised by people and major companies that use digital technology to execute daily tasks - economic, educational, and social (Lahlou, 2008; Ghazal et al., 2021).

The use of digital technology tools is also equipped with network equipment to enables

the function of digital tools. Modems, Network Interface Cards (NICs), Repeaters, Hubs, Switches, Routers, Bridges, and Gateways are network equipment that enable digital devices like computers, iPads, tablets, and smartphones to access content in the virtual world. Digital technology tools cannot be used ideally without such network equipment because it is required to connect with communication systems such as satellite systems to virtually obtain networks from various sources (Lahlou, 2008; Maral, Bousquet and Sun, 2020). Optimal use of technology by Individuals or communities can be achieved through various sources with the network connectivity they have.

During a pandemic, digital technology becomes an unavoidable part of society's daily routine. The use of digital technology has covered all aspects of society, including in the healthcare, education, economy and daily life sectors (Vargo et al., 2021). Digital technology was utilised in the healthcare sector to administrate and conduct day-to-day tasks, and it comprises both hardware and software. For instance, a computed tomography (CT scan) scanner was used to detect and diagnose the covid-19 virus's specific symptoms. In terms of education, digital technology uses more on online teaching and learning delivery methods. Prior to the pandemic, digital technology in teaching and learning, such as Google Meet apps, Google Classroom, Zoom, Webex, and Google Hangouts, was mainly unused until the pandemic struck. Like the economic sector, most contacts during a pandemic use digital technology to prevent covid-19 infection. In addition, there was much debate in social media networks concerning the usage of digital technology applications in conducting elections online (Anuar, 2020). During the pandemic, the community's daily existence relies on digital technology to conduct all personal and work-

related activities (Labanieh, Hussain and Mahdzir, 2021).

In addition, the digital society also faces changes in the digital equipment and technology used. Changes were in terms of network technology, software technology, communication technology, database technology, and multimedia technology. The change of equipment and technology in the digital society was due to the advancement of information and communication technology development (Helbing, 2015). The development of digital technology has brought routine changes in society's social and economic life (Dapp, 2011). According to Griffiths, et al. (2017), most young people believe that new technology will transform their educational and teaching practises in the future. Digital technology enables and facilitates young people to access their own learning with constantly updated technology. Knowledge and learning were also in line with the development of digital technology, which is often alternating and changing.

Computers had a basic and easy-to-use visual style at the end of the 1980s. This opens a lot of possibilities for computer usage in general. At the same time, computers were viewed as a technology that can be utilised in the home, recreation, education, and work (Martin, 2008). Computers are digital technological devices that most people today own. Besides, computer functions can also be achieved through smartphones. Computer functions in smartphones were utilised in various fields, including security areas such as detecting human movement through phone detectors (Thornton and Houser, 2005). In addition, smartphones were also used in education by applying digital skills such as acquiring and generating knowledge via technology (Györbíró, et al., 2009).

During a pandemic, the education sector had to modify and adapt the way it delivered teaching and learning due to the constraints to conduct teaching and learning face-to-face

due to covid-19. Changes in digital technology that educators widely use during the pandemic include using all computer equipment and smartphones to access various types of Google applications, learning through video, voice recordings, etc (Vargo et al., 2021). In order to accelerate the data and detection of the covid-19 virus, technological changes in data collecting, analysis, and detection systems were widely utilised and updated in the healthcare sector. For instance, during a pandemic, computed tomography was utilised to detect the covid-19 virus, which had previously only been used to obtain comprehensive images of various types of tissues, including the lungs, bones, soft tissues, and blood vessels (Viansone et al., 2021). The judiciary also had to use telework technology for court hearing (Labanieh, Hussain and Mahdzir, 2021). During a pandemic, communities worldwide had to adapt to changes in digital equipment and technology to continue their daily routines.

In addition, the Internet of Things (IOT), 5G technology, cloud computing, and Big Data were thriving fields in the digital society. In the face of intense digital technology competition, all things require swift action in line with the rapid development of technological products and smarter automation systems (Fonseca, 2018). New digital technologies were constantly being introduced into society in the digital era. This results in previous technologies not being able to be used optimally due to the availability of new digital technologies that can perform better than previous technologies. The flexible nature of digital technology makes technology products continuously being developed. Therefore, the skills of the digital community also need to be adaptable according to the development of digital technology.

During a pandemic, technology has taken over many forms of work and

communication due to the increased danger of covid-19 virus infection and the community's restrictions on movement (Aziz, Noor and Mohamed, 2020). Artificial intelligence and blockchain were two of the technologies that were employed during pandemics. Blockchains were used as a way to store information using electronic ledgers. During pandemics, X-rays or computed tomography scans were utilised in healthcare and detecting software like monitoring band made the quarantine compliance categorization process easier. In addition, tools such as CioTVID were created to collect, compile, and provide covid-19-related data (Ramallo-González, González-Vidal, and Skarmeta, 2021). During pandemics, most IoT technologies were utilised in the health sector to accelerate, compile, and provide data to the health sector and society (Javaid and Khan, 2021; Kumar et al., 2021).

DISCUSSION

The focus of this paper's discussion on digital society and pandemics is on the notion of the digital divide and the information gap in terms of education and the spread of false news or information.

The digital society can be understood through concepts such as the digital divide and the information divide. The digital divide in a society occurs when there is a gap in technical skills and the society lacks access to information and communication technology (Antonio and Tuffley, 2014; Siregar et al., 2022). Technical skills include accessing, recording, editing, publishing, and exchanging information with other communities (Cantabrana, et al., 2015). The information gap arises when a community's access to information and communication technologies is limited due to a country's acceptance of technology because some developing countries still lack access to

information and communication technology (Norris, 2001).

The education sector also shifted to online learning since the pandemic forced many sectors to turn towards online. However, a small number of educators were not equipped with the skills to use digital technology (Mercier et al., 2021). Therefore, traditional face-to-face learning was still an option in learning sessions. It complicates the learning process, especially for individuals who lack the basic skills required to use digital technology in teaching and learning. This situation makes it more difficult for teachers to prepare and face online learning (Junus et al., 2021). Other unanticipated issues from the teaching staff also included not being able to pick up the equipment at the office due to the travel restriction order (Iivari, Sharma and Venta-Olkkonen, 2020). Therefore, learning and teaching were hampered due to this unavailability.

In addition, students lack the skills necessary to utilize digital technology equipment in the classroom, such as Zoom, Google Meet, and other technology tools (Iivari, Sharma and Venta-Olkkonen, 2020). Additionally, students from rural areas do not have the same degree of internet access as students from urban areas since these students are from lower socio-economic backgrounds. They were unable to afford learning materials and high-speed internet services (Azubuike, Adegboye, and Quadri, 2021). The learning equipment used was only with their own smartphones or family members with a regular internet plan (Indira, 2021). During the pandemic period, this makes online learning challenging for students. Nonetheless, the teaching staff makes every effort to keep students studying by contacting them and providing lesson modules via SMS and phone calls to those who do not have WhatsApp.

Furthermore, in a pandemic period, the spread of false information or fake news

becomes a focus of concern about the digital and information gap. One side depicts how simple it is to get information, while the other depicts unbalanced since there is a digital gap at every level of society. It is uncommon among information literate people, compared to those unconcerned with the source of information and acts on self-satisfaction (Berita Harian, 19 Jun 2019). Most of the fake news was disseminated via social media (Ngadiron, Abd Aziz, and Mohamed, 2021). Social media's easy access to information makes it a platform for disseminating false information or fake news. The primary reasons it is so easy to spread false news were people's easy-to-believe attitude in whatever they read and their self-satisfaction. The spreading of false news or incorrect information confuses the public, which makes it difficult for the public and the authorities to fight against the covid-19 virus (Sugiyanto, Arrasy, and Melanie, 2021). This situation can threaten security issues in terms of self-protection from infectious diseases (Abdullah, 2021).

The digital and information divide during the pandemic period can be seen from the social perspective and the socioeconomic background of society in general. It can be observed in the education aspect, where teachers who are conventionally used to teaching and learning were now required to master digital technology skills, particularly equipment that allows for online learning. Also, students were not very knowledgeable about learning applications because although they were used to using other digital technologies, online learning applications were still new to them. Furthermore, the digital and information gap contributes to the dissemination of false news and information during the pandemic due to individuals who prefer to trust information that is not known by the actual source and are not literate in verifying the information received (Wahed, 2020). Thus, during a pandemic, the digital

divide and information gap greatly influence aspects of society's daily life, particularly in terms of education and the spread of false news and information.

CONCLUSION

In conclusion, the digital society during a pandemic largely relies on digital technology to carry out daily activities. It includes the use of digital technology in the healthcare sector to facilitate the detection of the covid-19 virus to data storage and data provision to the public. Similarly, in the education sector, digital technology applications are being used to conduct teaching and learning. The community's daily life is shifting towards the virtual world since all activities were conducted online, including employment, which is facilitated by telework. Even still, there is a digital divide and an information gap in society during a pandemic. Although the digital and information divide has been in the life of the digital society, it has a greater impact during a pandemic due to the different socioeconomic backgrounds of the communities. As a result, teaching and learning were both hampered by this scenario. The digital divide and information gap also caused fake news or false information to spread during a pandemic.

Therefore, new responsibilities and regulations must be developed to address the difficulties and challenges that today's digital society faces (Haraoka, 2018). These are also for the future rather than just during a pandemic. It encourages the use of digital technology towards a positive impact so that the digital community can use digital technology optimally in their daily lives. The flexible nature of digital technology, which is continuously changing or improving, is also one of the challenges that digital society needs to face. The use of new digital technologies cannot be implemented immediately due to the decline in digital

technology literacy. In a digital society, this leads to a digital divide and an unequal information gap. In the current pandemic situation, the digital community needs to be sensitive to every piece of information received and be able to master the fundamental skills in handling digital technology for the needs of daily routines and supplies in the future.

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