

CIVILIZATION AND THE DIGITAL ERA Opportunities and Challenges for the World and Indonesia

Alwi Alatas

International Islamic University Malaysia

alwialatas@iium.edu.my

Abstract: This article examines the meaning and development of civilization and relates it to today's digital era, using particularly Islamic view. Society has evolved over several millennia, from small wandering communities to complex urban settlements. The population grew, a number of innovations were produced, and societies extended into civilizations. Civilizations emerge and decline, while sciences continue to grow and become more advanced throughout history. In the last few decades, the world has entered the digital era with very fast innovation and progress. Technological changes affect the way humans think, work, and behave. Digital technologies open up a number of opportunities, but also creates new challenges, including for Indonesia. Among the important challenges underlined by this research is the distraction and reduction of spiritual values and the essence of humanity, which are at the core of civilization according to Islamic perspective. It is a civilizational responsibility for today's society to make sure that digital development will not reduce humanity and will not distract it from moral-spiritual values and objectives.

Keywords: *Civilization, digital era, Indonesia, Islam, spirituality, technology*

INTRODUCTION

History has been going on for more than five thousand years since the emergence of great civilizations such as Mesopotamia and Ancient Egypt in the Near East. Civilizations in the past have produced revolutionary inventions – or simpler ones – that have brought society to a more complex stage of development. Civilizations rose and fell following their particular time period. New major civilizations would typically study and develop the achievements of previous civilizations and bring them to a more advanced level, particularly in scientific fields.

In the last century, the world has witnessed rapid development. It is not only fast, but also accelerate, especially in the last few decades. Many technologies used by society several decades ago, have suddenly become obsolete and are no longer in use today. Industry underwent revolution and social and economic life experienced enormous disruption. If in the past changes occurred over a long period of time, now major changes occur several times by the same generation. Most of the important changes that have taken place in recent decades are closely related to the development of digital technologies. Using Islamic views, this study discusses the construct of civilization, some of its

breakthrough achievements, and the emergence of the digital era in the last half century along with its opportunities and challenges, particularly for Indonesia.

RESULT AND DISCUSSION

On Civilization and its Achievements

The term civilization first appeared in 18th century France and ever since its meaning evolved around politeness, civility, and the opposite of barbarism. This term temporarily rivalled by the word "culture", which was favoured by German intellectuals (Mohd Sobri, 2019). However, anthropologists then used the latter word for primitive societies and the term civilization for more advanced and complex societies (Braudel, 1995).

When discussing civilization as a concrete entity, certain scholars point to early examples such as Mesopotamia, Ancient Egypt, Ancient Indians, and Ancient Greece (Scarre & Fagan, 1997). For the modern era, other academics such as Samuel Huntington (2003) suggests the existence of seven or eight world civilizations, including Western, Chinese, Hindu and Islamic civilizations. These examples essentially refer to social entities on a very large scale, spanning multiple generations and states or dynasties, and most of them spanning more than one nation. Ancient Mesopotamia for example, ruled alternately by different empires: Akkadian, Babylonian, etc., and Islamic civilization contains the historical course of a large number of dynasties that includes the Arabs, the Persians, the Turks, and the Malays. The idea of such a large-scale social entity has only clearly emerged in the last few centuries. When Ibn Khaldūn (1978) wrote the *Muqaddimah* and his book of history, he spoke of the rise and fall of dynasties within Islamic civilization; he does not discuss the rise and fall of civilizations. The idea of the development of civilization has been embedded in explaining the change of society from a very simple nomadic background to a complex urban society, but civilizations as large social units that have existed in history have not been clearly defined. There were Muslim thinkers who lived in the 20th century such as Malik Bennabi (d. 1973), an Algerian thinker, who discussed civilization in the modern sense of the term, while he developed his particular exposition of it (Bariun, 1993).

Although Western societies pioneered the modern term and concept of civilization, some related Arabic vocabularies are no less important in understanding civilization. They have a very elaborate network of meanings and seem to record the traces of the historical development of society in a civilized direction. There are at least three Arabic words that have the meaning of civilization, namely ḥaḍārah, 'umrān, and tamaddun, each with a different emphasis. Ḥaḍārah mainly talks about the sedentary nature of society, as opposed to nomadic life (badāwah), 'umran about its development and prosperity, as opposed to state of destruction and desolation (kharab) (Hans-Wehr, 1966; Ibn Manẓūr, 1119H), while tamaddun, derived from the word dīn (religion), seems to emphasize aspects of realization and orderly living of the community (Al-Attas, 1993).

Some Western thinkers believe that human civilization is in a perpetual state of progress, always in development, although there are those who criticize it (Rotenstreich, 1971). Some see progress as a dialectical historical process, some see it as a form of human ability to inherit and develop knowledge. When a civilization experiences a setback, another civilization is ready to take over and continue the leadership. The process may be complicated and cannot be easily observed. However, science continues to develop dynamically along with other historical developments. The development that is being discussed here refers to the physical/material aspect of civilization, which is usually the main concern of many thinkers of history and civilization. In fact, civilization also has a spiritual aspect that has its own dynamics and may sometimes conflicting with the physical aspect. Ibn Barraĵān, the Andalusian Sufī of the 11th century, must have had this spiritual aspect in mind when he describes his idea of the cycles of decree (dawā'ir al-taqdīr). In this cycle, humans, kingdoms, and historical events in the visible realm ('ālam al-shahādah) rise and decline following the rhythm of originating and returning to God (Casewit, 2014: 424). Malik Bennabi emphasizes the importance of spirituality for the emergence and revival of civilization. Meanwhile Syed Muhammad Naquib al-Attas (2011) describes Islamic civilization as “a living civilization whose pulse describes a process of Islamization, not in the dialectical sense of an evolutionary 'development', but in the sense of a progress involving every generation of Muslims towards the realization of the original nature and spirit of Islam as something already established in history” (p. xv). He repeatedly criticized Western notion about progress and development, and when talking about the golden age of Islamic history, he categorically refused to pin it on the

Abbasid period, because that period represented the peak of physical development. The best spiritual development was in the era of the Prophet Muhammad and therefore this period is more worthy of being called the real golden age of Islamic civilization (Al-Attas, 1993). The physical development of civilization may not be lasting as some adherents of historical progress might think. As in the case of humans, dynasties and civilizations, the history of humanity in its totality also has a life span that is likely to end in decline. But this is beyond the theme of this article.

According to certain scholars, civilization has a number of characteristics that differentiate it from uncivilized society. These characteristics includes the presence of urban life, government, social stratification, and science. Scarre & Fagan (1997) consider this list of characteristics to be unconfirmed, but admit it has a practical use in identifying civilizations. One from the list that is relevant for this study is the concentration of surplus. In the past, sedentary people organized themselves through several basic livelihoods such as agriculture and animal husbandry. Next, they thought further ahead, made savings and accumulated surpluses from their harvest, things that food gatherers could not really do. The surplus was useful as a reserve in dealing with difficult times such as drought, and it would also be used later to be exchanged in trade, making the community's economy grew and developed. The concentration of surplus requires storage that could preserve necessities to be utilized later on (Childe, n.d.).

Since the era of ancient civilizations, a number of revolutionary changes have occurred in history, many of which related to the ability of society to create and develop storage system. Obviously, this is not the only factor underpinning change, but it is an important one. Approximately in 3000 BCE, for example, the people of Uruk in Mesopotamia (Southern Iraq) invented a writing system, which subsequently spread to Egypt and other regions. They created and developed the script, known as cuneiform, and applied it upon soft clay tablets. The soft clays acted as repository to record spoken expressions or languages that had been converted into written form. While previously these expressions could only be kept in human memory, now they were preserved and could be revisited by succeeding generations (Van de Mieroop, 2005). Reservoirs or dams are storage for water which is very crucial for people's lives. The reservoirs function to harvest rainwater or river water during floods, and store it so that it can be used by society

(Baba et.al., 2018). Important innovations that helps humanity to store and distribute more effectively usually becomes a revolution in history. The industrial revolution, for example, is concerned with the transformation and distribution of energy for mechanical works and production, initially driven by steam power and then shifted to electricity, which are becoming increasingly developed with the possibility of energy storage in batteries. Cameras and audio-video recording play a role in storing images, sounds and moving pictures.

Computers store digital data and information based on a binary system, which is a form of manipulation of computing devices that only understand "yes" and "no", "1" and "0". The internet and a number of other related technologies have made it easier to store and distribute data. Automatic machines store patterns and programs that repeat themselves. And now Artificial Intelligence stores and applies the ability to think in non-human objects. Storage system has made possible the preservation of surplus as well as the economic exchanges that make wealth and prosperity grow. The above only partially describes the development of society and civilization. There are, of course, other things that contributed to important changes throughout history. Population growth and the development of sciences and technologies, for example, have contributed significantly the development of civilization. Without a large population that allowed intricate work specialization and scientific innovations that solved existing problems, major changes would not have occurred in history.

The Digital Era

Science and technology have developed very rapidly in the last half century. Some technologies that exist today, such as smartphones, robotics, 3D printing, and artificial intelligence, might have been seen as miracles by people who lived six or seven decades ago. The rapid development of technology has drastically changed the way humans work and behave. Various recent changes are closely related to the emergence and development of digital technologies, which revolutionized industry and shifted technologies from analogue and mechanical devices to digital (Sharma & Shanmugaboopathi, 2022). The process encompassed digitisation or “changing information or data into a digital format” that “involves creating a digital version (using bits and bytes) of analogue/physical sources such as documents, images, sounds, and more” (European Commission, 2019, p.

12). Actual data are converted into the binary code of zeros and ones that become readable pieces of digital information and evolve into virtual representation of our life. Even though digital data is intangible, it is not an ethereal substance. The data has to be stored in the physical infrastructure. In terms of power, modern society still uses electricity, but now people can translate objects into digital arrangement and manipulate them efficiently, thus transforming the society in around 1990 from industrial to information era (Digital Economy Report, 2021).

Technological devices that reinforced digital advancement have rapidly developed in the last five decades. In 1972, a 32 kg computer was made and used for the space project, and a few years later computers with similar capacity were marketed to people's homes. In 1973, Motorola released a mobile phone prototype that weighed 5.5 kg and was 23 cm high. Today, smartphones with smaller and lighter but much better qualifications can be obtained easily. The plan for the world wide web was started at the end of the 1980s, starting with a single web server, then exploding into more than a hundred million servers in 2022. Throughout the decades, digital camera, Wi-Fi, social media, and many other things related to the digital world have also arisen (Frery, 2022). The spread of internet and other digital technologies has accelerated the digital expansion. The number of internet users in the world grew into 1.2 billion in 2005 and into 4.9 billion in 2021 (Sharma & Shanmugaboopathi, 2022). Our understanding of reality today has been heavily influenced by digital technologies, which continue to permeate the current civilized world (Leshkevich, 2021). Important digital changes can be seen in, inter alia, and not limited to, educational and economic aspects, the first of which is crucial for the continuity of civilization and the second is an important measure in the physical development of civilization.

After the emergence of personal computers, desktop computers have soon entered schools – at least in the developed countries. Schools, and business entities, invested in the procurement of computer equipment and software to support education. In the 1990s, the internet gained access to many schools and in the following decades it could be widely accessed by people, making its use in educational contexts more dynamic and interactive. This development significantly affects the education world (Howard & Mozejko, 2015). In Ireland, for example, digital learning had developed from the establishment of digital

space in the 1970s to policy in the 1990s and to its further expansion in the following decades. Throughout its historical development, it is found that imbalances occurred between educational policies and classroom practices, along with some other shortcomings that need to be addressed in the future (Bough & Sainz, 2022). Similar stages and problems may also be experienced by educational institutions in the other countries, which have been largely exposed to digital technologies in the last few decades. Conventional education in physical classroom has gradually be outmoded with the emergence of digital learning. With the latter, learning process can be done in online mode, without being limited by space. The learning interaction, access to sources, as well as learning media and tools become copious and worldwide (Haleem et.al., 2022).

Digital trend penetrated all levels of education. Those who involve in education acknowledge the need for educational reform in relation to digital developments in K-12 educational level (Finn & Fairchild, 2012). In the higher education level, some academicians have discussed and debated about the prospect of “digital humanities” as a separate discipline (Schreibman et.al., 2016). If the old discipline of humanities “seek to understand and interpret the human experience,” the digital ones engage with computational approaches “to understand what it means to be human, in both our past and present society” (Terras, 2016, 1637-1638). These only to highlight how far education has been absorbed into the digital world.

The development of digital technologies has also caused many changes in the economic field. Computers and digital applications are progressing and offering new ways of working. The use of papers and analogue technologies has decreased and replaced by digital alternatives. The need for office spaces and physical meetings as well as the use of cash in transactions has also lessened with the advent of digital technologies. Shopping trend has increasingly shifted from physical to online markets. As stated by Zia Qureshi (2019), “Digital technologies are altering business models and how firms compete and grow. They are reshaping market structures. Change affects all markets, from production and commerce to finance” (p. 4).

Data, which is the product of digitization, has become a new precious resource that is sometimes compared to oil. Due to its unique characteristics, data has even become a separate economic category that is different from goods and services. The digital

economy has always been about data and large companies that control data and digital products and applications, such as Google, Apple, Amazon and others, are today the leading commercial entities. In the digital era, economic costs are cut and the data can be exploited and analyzed more effectively to make better business decision. The Internet of things (IoT), artificial intelligence, robotics, 5G mobile networks, cloud computing, and big data analysis have generated a highly-connected global societies and a highly-digitalized economic societies. Traditional economy has been transformed into or merged with the digital economy, bringing about innovations in organizational structures, business schemes, and modes of production (Economic Commission for Latin America and the Caribbean, 2021).

The digital economy has been growing and is predicted to continue to increase in the future. In 2020, for example, the global internet market is valued at \$308.97 billion and is projected to grow to \$1.85 trillion by 2028, with an annual growth rate between 2021 and 2028 of 25.4 per cent. Internet spending has not experienced a negative impact due to the Covid-19 pandemic. The largest internet spending in the world is represented by China, the United States, and Western Europe, but several other regions such as Middle East and North Africa, Central and Eastern Europe, and Latin America are also seeing large growth in internet spending, each above 15% (Digital Economy Report, 2021). The digital economy does not only become an integral part of new companies related to digital technology, but also pervade manufacturing industries. Industrial fields that are usually considered to be less digital, such as agriculture, mining, and construction, are rapidly adopting digital technologies. This shows how the digital world has attracted various economic and industrial sectors to obtain benefit from it (“Digital spillover,” n.d.).

Digital absorption has helped various sectors of life, but at the same time it has also forced new things that society is not always ready to anticipate quickly. In the following section, we will discuss some of the opportunities and challenges regarding the development of the digital world.

Opportunities and Challenges of the Digital Era with Particular Reference to Indonesia

This article will not discuss all the opportunities and challenges offered by digital technologies, but will only highlight some of them. So far digital technologies have

provided a number of benefits in people's lives, and these benefits are likely to be even greater in the future along with further advancement of the digital world. Digital technologies have significantly cut various costs in the economic processes (Goldfarb & Tucker, 2019). The development of the digital world has also encouraged the birth of various new innovations that have wider implications for society. Productivity has the potential to increase due to ease in production and business processes as well as efficiency in organization. Opportunities are also increasing in the business world, including in the global trade, which can also be accessed by small and mid-size enterprises (SME) ("Digital development," 2019). The way of learning becomes more dynamic and collaborative, especially with the continuous development of various educational applications. Diseases are easier to diagnose with technology based on artificial intelligence and therefore life expectancy can be expected to increase in the future. Public services are becoming more accessible and more open, with the potential to significantly reduce complicated bureaucracy. The growth of social media makes it easier for people's voices to be heard and sometimes they function as effective social controls. New fields and ways of working that were never thought of before have become possible due to very fast technological and digital changes. The economy is becoming greener and it is estimated that by 1930 there will be 24 million new jobs worldwide ("The Impact of Digital Technologies," n.d.). Through technology, not only can digital data be easily copied, erased, and reproduced, but that data can also be printed into physical objects and modified relatively easily, which can to some extent be imagined like a Lego game (Sayers et.al, 2016).

Some of these opportunities are well captured in Indonesia and can be observed in the emergence of a number of online platforms such as Gojek, Tokopedia, and also a number of fintechs, healthtechs, and edtechs apps. The digital industry in Indonesia experienced growth between 2019 and 2022 from US\$41 billion to US\$77 billion. Internet users also underwent a significant rise during the Covid-19 pandemic. In 2019 there were 150 million internet users in Indonesia and in the following two years this number increased to 203 million users, representing 73.7% of the total population (Negara & Meilasari-Sugiana, 2022). E-commerce annual revenue increased between 2017 and 2019 from \$9 billion to more than \$20 billion and it is predicted to reach \$90 billion in 2025 (Chen et.al., 2023). The digital world has also penetrated the Islamic economy and

halal industry. Together with Malaysia and Saudi Arabia, Indonesia has the highest utilization of global e-commerce and m-commerce among the OIC countries (“Indonesia halal markets report 2021/2022,” 2021). Several digital applications have facilitated those who want to give alms and pay zakat through online platform, the value of which reaches hundreds of billions of rupiah (Triantoro et al., 2021). The development of digital technology has even opened up opportunities for the home-based halal industry to grow (Hasan & Pasyah, 2022). All this certainly opens up new occupations and economic opportunities. Not only opportunity, the digital era also created a number of new problems and challenges. Digital technologies and the internet cannot be accessed equally by all groups of people. Big data may still not fully access less fortunate groups of people and therefore may still has bias. Social media also has the potential to amplify the spread of misinformation and social fragmentation. The digital era demands new digital skills that may not be easily accessible to everyone. While this era offers new jobs, it will also eliminate many old jobs, to be replaced by digital-based automatic machines. It is estimated that in 2030 there will be 800 million people who lost their jobs because of this change (“The Impact of Digital Technologies,” n.d.).

The digital era has also created economic disparities, because digital access and capabilities do not develop equally among the people, companies, and countries. Although not the only factor, technological changes have contributed to widening the economic gap. In the United States, for example, income inequality (Gini Index) has increased by more than 10% in the span of more than 20 years by 2015. The richest people, the top 1%, have experienced a large increase in their income share, at the expense of the middle-class incomes. Digital technologies are not owned equally by existing companies. The economic structure is moving in a monopolistic direction. Benefiting from digital technologies, the economic productivity of the big companies has been up, but the bulk smaller companies have been experiencing a slowdown (Qureshi, 2019). As an example of inequality, by 2021, nearly 80% of co-location data centres are situated in developed countries, especially in North America and Europe. Over 50% of hyperscale data centres are controlled by Amazon, Microsoft, and Google (Digital Economy Report, 2021). The gap caused by digital technology has the potential to create new economic imperialism in the world (Gapsalamov et.al., 2020), since data is a very important new

resource and storage centres and developments in digital technologies are dominated by a handful of countries and big companies.

In the archipelagic country of Indonesia, physical and digital infrastructure and internet connectivity are still the privileges of the people in big cities and scantily reach those in remote areas. Technological and digital gaps are real. Eighty per cent of internet users in Indonesia are located in Java and Sumatera. The recent emergence of Covid-19 has magnified this challenge, for many low-income students and teachers have limited access to and skills in the digital technology required for distance learning. As many as 67% of Indonesian teachers in 2020 face difficulties in using devices and implementing online learning, while facilitation from the Indonesian government in this regard still cannot be enjoyed by many teachers (“Strengthening digital learning across Indonesia,” 2020).

The contribution of the digital economy to GDP in Indonesia is relatively low, namely 2.9%; slightly higher than the ASEAN average, but lower than Vietnam (4%) and Singapore (3.2%) (Astuti, 2021). When compared to many other Asian countries, the internet infrastructure in Indonesia is relatively weak. Many internet users still rely on mobile network rather than fixed broadband network (Suryanegara, 2023). Approximately 30% of the circulation of money supply in the public comes from outside banking system, indicating the large opportunities for fintech growth in Indonesia. The fintech business indeed grows rapidly. However, of the 161 existing fintech companies, only 12 are sharia-based, even though Indonesia is a predominantly Muslim country. This is a challenge for Muslim financial players to reduce the existing gap (Suryanegara, 2023). Another important challenge to pay attention to is Indonesia's low ranking in terms of technological progress, including in digital technology. Indonesia is ranked 82nd out of 158 countries surveyed regarding their readiness for frontier technologies, lower than some Southeast Asian countries such as Singapore which is ranked 5th, Malaysia (31st), the Philippines (44th), Thailand (46th), Viet Nam (66th), and Brunei (69th). The ASEAN countries mentioned above are in the high or upper-middle group score ranking, while Indonesia is in the lower-middle group. Indonesia's ICT ranking in the survey is even lower, namely 101st, and is also still behind those ASEAN countries (“Technology and innovation report 2021,” 2021). Technological progress and innovation, especially in the

digital field, have an important role in determining a country's digital advancement, and therefore Indonesia needs to catch up with other countries. Technological changes in the last few decades have caused major disruptions that resulted in the rise of anxiety among workers, as well as a number of other problems. The development of technology and the physical development of civilization is a necessity and not something to be despised or lamented. But its development needs to be balanced with policies that can reduce the negative impacts of these changes.

From Islamic perspective, another challenge of the digital era is the potential for spiritual values to erode. Although the physical-material aspect is acknowledged and not neglected in Islam, it is not seen as more important than the moral-spiritual aspect. It is important to remember that physical-material growth has a tendency to corrupt moral-spiritual values (Ibn Khaldūn, 1978). It is because of this emphasis on morality and spirituality that Islamic civilization, as suggested by Wan Mohd Nor Wan Daud (2018), can be called a virtuous civilization. The word virtuous is related to the word virtue, both of which come from the Latin *virtus* that means "power" or "strength". In the medieval era it developed into *virtualis* which means more or less the same as virtue. Among other things, the meaning of virtue is "conformity of a life and conduct with the principles of morality." The word virtual, which is used to describe the digital world, also comes from the word *virtus*, but has a meaning that is less related to virtue. Virtual can be interpreted as "real without being actual" or "that which is so in essence but not actually so" (Shields, 2003, pp. 2-4). Through digital development, today's civilization continues to expand into the virtual world, everything in it represents actual objects and persons. However, it can be said that there is no connection between this virtual thing and spirituality. Even the digital world may boost distractions against spiritual drives and endeavours, adding to the distractions that has been existed in the actual reality. Not only distracting, the digital world also has the potential to reduce humanity itself, though not because of the presence of the digital technologies, but because of corruption in human discernment. The main value of man, as seen in Islam, lies in his soul, which is the locus of his spirituality. In today's digital era, humans not only interact with data, but humans themselves are often seen as data, something that actually reduces their value. Throughout history, humans have innovated and delegated some of their work to machines. In today's era, humans are in the process of delegating their intelligence through artificial intelligence, with possible

enhancements that go beyond human own intelligence. The development of the digital era has made humans increasingly dependent on technology, jobs are increasingly replaced by machines, and individuals are increasingly losing privacy over their personal data (Hassani et.al., 2021). As digital technology continues to develop, will humans lose their relevance, to become an outdated human being? If that really happened, then it would not be due to inevitable change, but rather because they fail to regulate changes and because they misunderstood his own nature as a human being and therefore give up their own relevance.

Islamic civilization has no interest to reject digital technologies, because many benefits can be obtained from it. Its partaking in the digital race is inevitable, to ensure that it is not left behind and eventually overcome by other civilizations. But it must ensure that digital data and technologies are to be used optimally for the benefits of mankind. It also needs to guarantee that humans are not swept away and drowned by data; not to be distracted from their spiritual devotion. Everything must be put in its place. Data and technology do not exist to replace human beings, but to assist their lives and to achieve their goals. The government and society have to be present, providing appropriate regulation, reducing inequalities, overseeing the development and use of technologies. If technological development goes off track, then it must be put back on track.

With regards to Indonesia, even though it is not a country based on a particular religion, Islam is the religion adhered to by the majority of the population. Indonesian society also views religion as important (“Strengthening digital learning across Indonesia,” 2020), so that religion can be expected to act as a spiritual guide in the development of its civilization, including in the digital advancement. To be successful, the Indonesian government and its people need to practice those important things wholeheartedly; to understand and practice religion optimally (which is supposed to, for example, significantly reduce corruption), and not to neglect the achievement in the physical aspect of civilization, in this case technology and digital innovation. If all the spiritual and material potentials are fully utilized, they will certainly make Indonesia a truly strong country in the future.

CONCLUSION

Human civilization has developed over several thousand years. From the emergence of a simple settlement until its development into a complex urban life, the society underwent a dynamic historical destiny. Man found a way to store his surplus for long-term use and commercial exchange, boosting the economy to grow. Society expanded, work specialization arose, a number of innovations emerged to assist people's lives and develop civilization. Throughout history, humans found ways to record language in a written form, store water in reservoirs, and store energy in batteries and now store information/data in digital devices and data centres. Together with population growth, good cooperation, and the development of many innovations, today's civilization has achieved developments that were unimaginable in the past centuries. What is mentioned here is the development of physical civilization. In the view of Islam, apart from the physical aspect, there is also the spiritual aspect, which has a more important position.

Physically, today's civilization has extensively progressed and human life has been greatly assisted by current technologies. Various innovations emerged in the digital era: 3D printing, digital cameras, digital money, robotics, artificial intelligence, and many more. Digital technologies have provided many new opportunities for society, such as reduced production and transaction costs, accuracy in decision making, the emergence of new economic opportunities, and more open public services. But on the other hand, the digital era also brings a number of challenges, such as the replacement of a number of work fields by machines, increasing economic inequality, and the hasty spread of misinformation. In addition, the digital era also has the potential to cause distraction from moral-spiritual values which are human's core assets. Digital development also has the potential to debase humanity into mere data. The presence of these challenges should not make Islamic civilization withdraws from participation in the digital development, because the physical development of civilization is something that is common in history and digital technologies provide many benefits for human beings. But it is important for Islamic civilization to ensure that technological developments are not misunderstood and misused for things that reduce the essence of humanity and deviate from its purpose of life.

As for Indonesia, it is an area that hosts old civilizations with great legacies. Even though it was colonized by the Dutch for a long time and only gained independence less than eight decades ago, Indonesia is taking part in the current digital advancement. A number of digital applications in the forms of financial services, online banking, marketplace, health and education services have emerged and offered convenience for people in meeting their various needs. Nevertheless, a number of challenges still lie ahead, especially Indonesia's readiness in developing frontier technologies, of which Indonesia's ranking is still lower than several ASEAN countries. As a country that has great physical/material potential and whose people highly uphold religious values, Indonesia has great potential to excel in the physical achievements of civilization, no less in the field of digital technology, while still being guided by its spiritual values, as long as all its potential is fully utilized.

REFERENCES

- Al-Attas, S. M. N. (1993). *Islam and secularism*. International Institute of Islamic Thought and Civilization (ISTAC).
- Al-Attas, S. M. N. (2011). *Historical fact and fiction*. Universiti Teknologi Malaysia.
- Astuti, E. S. (2021, April). The Indonesian digital policy: Lessons from PRC's experiences. UNCTAD. https://unctad.org/system/files/official-document/BRI-Project_RP10_en.pdf
- Baba, A., Tsatsanifos, C., Al Gohari, F., Palerm, J., Khan, S., Mahmoudian, S. A., Ahmed, A. T., Tayfur, G., Dialynas I. Y. G., Angelakis, A. N. (2018). Developments in water dams and water harvesting systems throughout history in different civilizations. *International Journal of Hydrology*, 2(2), 150-166. <http://medcraveonline.com/IJH/IJH-02-00064.pdf>
- Bariun, F. 1993. *Malik Bennabi: His Life and Theory of Civilization*. Kuala Lumpur: Muslim Youth Movement of Malaysia.
- Braudel, F. (1995). *A history of civilizations* (R. Mayne, Trans.), Penguin.
- Bough, A. & Sainz, G. M. (2022). Digital learning experiences and spaces: Learning from the past to design better pedagogical and curricular features. *The Curriculum Journal*, 1-19. <https://bera-journals.onlinelibrary.wiley.com/doi/10.1002/curj.184>
- Casewit, Y. A. (2014). The forgotten mystic: Ibn Barrajān (d. 536/1141) and the Andalusian *mu'tabirūn*. PhD Thesis: Yale University.

- Chen, L., Ramli, K., Suryanegara, M. (2023). Introduction. In L. Chen, K. Ramli, F. F. Hastiadi, & M. Suryanegara. *Accelerating digital transformation in Indonesia: Technology, market, and policy*. ERIA. <https://www.eria.org/uploads/media/Books/2022-Accelerating-Digital-Transformation-Indonesia/Accelerating-Digital-Transformation-Indonesia-rev3.pdf>
- Childe, V. G. (n.d.). *Man makes himself*. Watts & Co.
- Digital development: Opportunities and challenges. (2019). United Nations Conference on Trade and Development. https://unctad.org/system/files/official-document/tdb66_d5_en.pdf
- Digital Economy Report 2021. (2021). Cross-border data flows and development: For whom the data flow. United Nations.
- Digital spillover: Measuring the true impact of the digital economy. (n.d.). Huawei & Oxford Economics. https://www.huawei.com/minisite/gci/en/digital-spillover/files/gci_digital_spillover.pdf
- Economic Commission for Latin America and the Caribbean (ECLAC). (2021). *Digital technologies for a new future*. United Nations. https://www.cepal.org/sites/default/files/publication/files/46817/S2000960_en.pdf
- European Commission. (2019). *Assessing the impact of digital transformation of health services: Report of the Expert Panel on effective ways of investing in Health (EXPH)*. European Union.
- Finn, C. E. Jr., & Fairchild, D. R. (Eds.). (2012). *Education reform for the digital era*. Thomas B. Fordham Institute.
- Frary, M. (2022). 50 tech milestones of the past 50 years. *Index on Censorship*, 51(1), <https://doi.org/10.1177/03064220221084443>
- Gapsalamov, A. R., Akhmetshin, E. M., Bochkareva, T. N., Vasilev, V. L. (2020). "Digital era": Impact on the economy and the education system (country analysis). *Utopía y Praxis Latinoamericana*, 25(10), 170-186. <https://www.redalyc.org/journal/279/27964799020/html/>
- Goldfarb, A. & Tucker, C. (2019). Digital economics. *Journal of Economic Literature*, 57(1), 3-43. <https://www.aeaweb.org/articles?id=10.1257/jel.20171452>
- Haleem, A., Javaid, M., Qadri, M. A., & Suman, R. (2022). Understanding the role of digital technologies in education: A review. *Sustainable Operations and Computers*, 3, 275-285. <https://www.sciencedirect.com/science/article/pii/S2666412722000137>

- Hans-Wehr. (1966). *A dictionary of modern written Arabic*. Otto Harrassowitz.
- Hasan, KN. S., & Pasyah, T. (2022). Challenges of Indonesian halal industry in the digital economic era. *Sriwijaya Law Review*, 6(2), 319-335. <http://journal.fh.unsri.ac.id/index.php/sriwijayalawreview/article/view/869>
- Hassani, H., Huang, X., & Silva, E. (2021). The human digitalisation journey: Technology first at the expense of Humans? *Information*, 12(7), 1-12. <https://www.mdpi.com/2078-2489/12/7/267#:~:text=The%20journey%20of%20automation%20has,at%20risk%20of%20being%20replaced.>
- Howard, S. K. & Mozejko, A. (2015). Considering the history of digital technologies in education. In M. Henderson & G. Romero (Eds.). *Teaching and digital technologies: Big issues and critical questions* (pp. 157-168). Cambridge University Press.
- Huntington, S. P. (2003). *The clash of civilizations and the remaking of world order*. Simon & Schuster.
- Ibn Khaldūn (1978), *An introduction to history: The muqaddimah*, London: Routledge and Keagan Paul.
- Ibn Manzūr. (1119H). *Lisān al-‘Arab*. Dār al-Ma’ārif.
- Indonesia halal markets report 2021/2022. (2021). Indonesia Halal Lifestyle Center & DInarStandard. https://isef.co.id/wp-content/uploads/2021/10/ReportIndonesiaHalal2021_2022.pdf
- Leshkevich, T. (2021). Anthropological changes of the person of the digital era. *Advances in Social Science, Education and Humanities Research*, 575. Proceedings of 6th International Conference on Contemporary Education, Social Sciences and Humanities. (Philosophy of Being Human as the Core of Interdisciplinary Research). <https://www.atlantis-press.com/proceedings/iccsh-21/125960618>
- Mohd Sobri, M. H. (2019). The genesis and evolution of the modern concept of civilisation in the eighteenth and nineteenth century Europe. *IIUM Journal of Religion and Civilisational Studies*, 2(1), 8-23. <https://journals.iium.edu.my/irkh/index.php/ijrcs/article/view/54/22>
- Negara, S. D., & Meilasari-Sugiana, A. (2022, November 8). The State of Indonesia’s Digital Economy in 2022. ISEAS Yusof Ishak Institute. https://www.iseas.edu.sg/wp-content/uploads/2022/09/ISEAS_Perspective_2022_109.pdf

- Qureshi, Z. (2019). Inequality in the digital era. In *Work in the Age of Data*. BBVA. <https://www.brookings.edu/wp-content/uploads/2020/02/BBVA-OpenMind-Zia-Qureshi-Inequality-in-the-digital-era.pdf>
- Rotenstreich, N. (1971). The idea of historical progress and its assumptions. *History and Theory*, 10(2), 197-221. <https://www.jstor.org/stable/2504292>
- Sayers, J., Elliott, D., Kraus, K., Nowviskie, B., & Turkel, B. J. (2006). Between bits and atoms: Physical computing and desktop fabrication in the humanities. In S. Schreibman, R. Siemens, & J. Unsworth (Eds.). *A new companion to digital humanities*. Wiley Blackwell.
- Scarre, C. & Fagan, B. M. (1997). *Ancient civilizations*. Longman.
- Schreibman, S., Siemens, R. & Unsworth, J. (Eds.). (2016). *A new companion to digital humanities*. Wiley Blackwell.
- Sharma, A. K., & Shanmugaboopathi, P. S. (2022). Digital revolution and its nature and extent in the contemporary world. *Technoarete Transactions on Advances in Social Sciences and Humanities*, 2(4), 27-32. <https://technoaretepublication.org/socialsciences-humanities/article/digital-revolution.pdf>
- Shields, R. (2003). *The Virtual*. Routledge.
- Strengthening digital learning across Indonesia: A study brief. (2020). UNICEF. <https://www.unicef.org/indonesia/media/10531/file/Strengthening%20Digital%20Learning%20across%20Indonesia:%20A%20Study%20Brief.pdf>
- Suryanegara, M. (2023). Technology progress and adoption. In L. Chen, K. Ramli, F. F. Hastiadi, & M. Suryanegara. *Accelerating digital transformation in Indonesia: Technology, market, and policy*. ERIA. <https://www.eria.org/uploads/media/Books/2022-Accelerating-Digital-Transformation-Indonesia/Accelerating-Digital-Transformation-Indonesia-rev3.pdf>
- Technology and innovation report 2021. (2021). UNCTAD. https://unctad.org/system/files/official-document/tir2020_en.pdf
- Terras, M. (2016). A decade in digital humanities. *Journal of Siberian Federal University*, 7, 1637-1650. https://elib.sfu-kras.ru/bitstream/handle/2311/20418/11_Terras.pdf;jsessionid=5D117E54236585D2B12B2AB3A6857BD6?sequence=1
- The impact of digital technologies. (n.d.). United Nations. <https://www.un.org/en/un75/impact-digital-technologies>

- Triantoro, D. A., Wahyuni, T., & Purna, F. P. (2021). Digital philanthropy: The practice of giving among middle to upper-class Muslimin in Indonesia and soft capitalism. *QJIS*, 9(2): 315-350.
<https://journal.iainkudus.ac.id/index.php/QJIS/article/view/7814>
- Van de Mieroop, M. (2005). *Cuneiform texts and the writing of history*. Routledge.
- Wan Daud, W. M. N. (2018). The timelessness of Prophet Muhammad and the nature of the virtuous civilization. *Tafhim*, 1-38.