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TECHNOLOGY IN ISLAMIC PERSPECTIVE

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Abstrack *This literature study examines the lack of awareness of Muslim society towards the importance of technology using a qualitative literature study approach and documentation techniques. The results of the study identify several current technologies that can change the world, such as AI, IoT, sustainable energy, and medical innovation, and highlight the contributions of prominent Muslim scientists such as Al-Zahrawi in surgery, Al-Khawarizmi in algebra, Ibn Al-Haitam in optics, Ibn Sina in medicine, and Ibn Firnas in aviation. This study also shows Islam's support for the development of science and technology as stated in the Qur'an (Al-'Alaq 1-5, Al-Mujadilah 11, Al-Anbiya 80) and the hadith of the Prophet Muhammad SAW which emphasizes the priority of seeking knowledge and the position of knowledgeable people. Primary research data comes from the journal "Muslim Intellectual Contribution to the Development of Science and Technology" by Holis et al. (2024), Tafsir Al-Qur'an Shahih Ibnu Katsir (2017), and the article "7 Types of Technology" from Telkom University Surabaya, with the main objective of finding out the types of future technology, identifying the role of Muslim scientists in the development of science and technology, and studying the verses of the Qur'an and Hadith related to science and technology.*

Keywords: *Technology; Islamic Perspective*

INTRODUCTION

Nowadays world is experiencing various kinds of extraordinary natural phenomena, namely the rapid development of technology that can change the conditions and situations that are above this world to be more advanced and modern and pleasing to the eye that sees it. Various kinds of changes occur on the face of this earth because of the rapid development of technology from non-moving and non-rational resources to moving resources and having reason, all of which experience unstoppable technological innovations (Pimay & Savitri, 2021).

From year by year, there has always been a tremendous technological development in various fields such as education which has been able to bring up virtual reality and augmented reality technology as educational support, zoom meeting technology for online class implementation, the use of AI to search for various sources of knowledge such as Claude AI, Chat GPT and search engine applications that are already embedded in Whatsapp and digital literacy as a way to strengthen character. In addition to education, there is also information technology, such as the development of 4G to 5G networks, which are currently widely used and also include IoT and applications that can detect damage to computers, laptops, and other electronics with only AI capital. Then in the economic sector, there is something called the Mobile Banking application which is increasingly updated which can be downloaded by each individual easily on the Play Store for people who have bank accounts so that with mobile

banking many people are helped in the transaction process of muamalat with many people and many others (Subandowo, 2022).

Along with the developments that have occurred above, it has actually greatly influenced the world of education, especially in Indonesia, where the majority of the population is Muslim, and Indonesian children who study from elementary school to college, whether they like it or not, must learn and understand the world of technology because they are the ones who will hold the shoulders of Indonesia's leadership in the future.(Warlizasusi et al., 2022).

They must also understand and comprehend the types of current technology that will change the world and how the role of Muslim scientists in the field of science and technology in the Islamic world and how Islam views science and technology as the adage that has been conveyed by the great physicist Albert Einstein who said Religion without knowledge is lame and knowledge without Religion will be Blind besides that Mr. Ir. Soekarno our first president also once said let us never forget history and is not the Qur'an has mentioned many history lessons about the prophets and the past people who were pious and people who rebelled against the call of Islamic preaching and also the stories of prophets and also a king namely Prophet Solomon who lived very richly and became king in his kingdom. Allah SWT has also taught the Prophet David examples of the application of science and technology, namely how to make armor and other war equipment, all of which are listed in the letter Al-Ambiya verse 80.

In the Qur'an, Allah SWT has also given extraordinary emphasis through his first revelation, Surah Al-Alaq 1-5, which was revealed in the Ghiro cave, precisely on the night of the 17th of Ramadhan, which gave the first lesson to the Prophet Muhammad SAW, namely the command to read, including reading science and technology for the benefit of life in the world and the Hereafter, all of which is believed and practiced solely because of Allah SWT and Allah SWT has also said in his verse Al-Mujjadi's letter. 11, the essence of which is that Allah SWT will raise the status of those who know the level of their pleasure(Muhtadi, 2020).

From the explanations above, it is very necessary to study technology from an Islamic perspective that discusses the types of current technology that will change the world, Muslim scientists who play an important role in the field of science and technology, and how the verses of the Qur'an or Hadith discuss science and technology.

METHOD

This research is included in the category of library research, namely a type of research where the discussion is taken from literature theories related to the data needed in the research process, which is reviewed and traced from library sources. (Rosid, 2021). The research was conducted from March to April 2025. The primary data in this study were a research journal entitled Muslim Intellectual Contributions to the Development of Science and Technology by Holis, Dudi Kiswanto, and Muhammad Fadhli Ramadhan (2024), the book of tafsir Al-Qur'an sahih tafsir Ibnu Katsir by Ibnu Katsir (2017), and also the publication of articles by Telkom University Surabaya entitled 7 types of technology: trends and innovations that will change the world. Secondary data sources consist of the latest research journals and books related to this research. Data collection techniques using documentation techniques. Examination of the validity of the data is through a credibility test carried out by extending the observation time, increasing perseverance, and correction by colleagues, in this case, friends who are in the Faculty of Engineering, Uniba Surakarta(Abubakar, 2021).

RESULTS

A. Latest Types of Technology That Will Change the World

Quoted from primary data in this study, namely articles contained in the Public Relations website published by Telkom University Surabaya with the title 7 types of technology: trends and innovations that will change the world and secondary data that explain the types of technology that will change the world will be presented below.

1. Artificial Intelligence Or *AI*

Artificial intelligence systems are replicas of human cognitive mechanisms implemented on programmed devices to perform human-like reasoning and reproduce similar behavior. This intelligent technology is developed to deal with various problems with a logical approach, including the capability to acquire knowledge, perform deduction processes, describe the complexity of problems, interpret natural language, and even produce creative innovations. From a simple perspective, artificial intelligence can be understood as an additional reasoning capacity that is integrated into a system and can be configured within a scientific framework. In addition, artificial intelligence can also be conceptualized as a cognitive ability inherent in scientifically constructed entities.(Kushariyadi et al., 2024).

The field of artificial intelligence has now produced significant transformations in various industrial sectors, from healthcare to manufacturing processes. In future developments, AI technology is projected to reach a higher level of sophistication with increasingly better learning and adaptation capabilities. This will enable the completion of complex tasks automatically, minimize human error, and increase work efficiency. However, this progress also raises various ethical issues related to the potential reduction of the human workforce and its impact on job availability. The following is a discussion of the implementation of AI.

First, the implementation of intelligent systems has penetrated multiple sectors with various manifestations. In the realm of health services, intelligent systems contribute to the process of identifying pathologies, compiling therapeutic protocols, and accelerating the formulation of pharmacological compounds. In the financial sector, intelligent systems are optimized for analyzing capital market trends, identifying transaction anomalies, and formulating algorithm-based investment strategies.

Second, in the field of mobility, driverless vehicles represent the application of intelligent systems that enable the operation of transportation with optimal safety levels without human intervention. Meanwhile, in the context of marketing strategy, intelligent systems facilitate a comprehensive understanding of consumption patterns for the preparation of more precise marketing campaigns. In the digital content industry, intelligent systems are the foundation of streaming services that offer content suggestions tailored to individual user preferences.

2. Jaringan Perangkat Terhubung *(Internet of Things)*

The network of connected devices is a cutting-edge technological innovation that essentially refers to a global ecosystem of integrated devices and infrastructure that are interconnected in a universal online medium and can exchange information simultaneously. This digital infrastructure is equipped with various components such as detection

instrumentation and software that function to establish communication, regulate operations, form relationships, and transmit data between devices as long as there is network connectivity and supports functionality without relying on physical connections, but rather relying on wireless technology. In the context of technical terminology, this connected device ecosystem has a significant correlation with the concept of communication between machines, or known as the interconnection of autonomous devices(Selay et al., 2022). The following is the implementation of a network of connected devices:

First, the network of connected devices has a wide spectrum of applications in various domains. The concept of smart homes integrates devices such as climate control, lighting systems, and security monitors that can be controlled remotely and operate automatically according to the occupant's preference patterns.

Second, in the context of healthcare, connected medical devices such as cardiovascular monitors or glucose monitors can transmit health data directly to medical personnel, facilitating more comprehensive monitoring of patient conditions. In the manufacturing industry, networks of connected devices are used to anticipate machine breakdowns, optimize production lines, and manage logistics more effectively.

Third, the intelligent transportation system adopts a network of connected devices for traffic flow management, road infrastructure monitoring, and vehicle route optimization to minimize congestion and improve safety factors. In agriculture, the network of connected devices supports farmers in monitoring soil conditions, meteorological parameters, and crop development in real time, enabling more efficient resource allocation and increasing agricultural productivity.

3. Sustainable Energy Sources and Environmentally Friendly Innovation

In line with the increasing global awareness of climate change, the development of sustainable energy technologies such as solar and wind power will continue to show accelerated development. In parallel, environmentally friendly technological innovations, such as electric vehicles and sustainable construction materials, will increasingly dominate the market landscape. Future technology development trends will focus on formulating solutions that are not only innovative but also environmentally friendly to maintain the sustainability of the planet's ecosystem. Some typologies of sustainable energy sources include solar energy, wind energy, hydro energy, geothermal energy, and biomass energy.

4. Medical Innovation and Bioengineering

Progress in bioengineering and medical technology will open up opportunities for more personalized and effective therapeutic approaches. Technologies such as CRISPR genetic modification and communication network-integrated medical instrumentation will fundamentally transform the methodology of disease diagnosis and therapy. The future healthcare landscape will be characterized by a more holistic system of care and more proactive preventive strategies. Some of the key methodologies in bioengineering include genetic modification, tissue culture, DNA amplification via PCR, and fermentation processes.

B. Muslim Scientists Who Play an Important Role in the Development of Science and Technology Today

Islamic civilization has given birth to several figures who have made valuable contributions to the development of world science. This document describes five Muslim scholars whose work became the foundation of modern technology:

1. Abu al-Qasim Al-Zahrawi was a pioneer in the field of medical surgery. As a leading surgeon from Andalusia, he created a variety of innovative medical instruments and wrote a medical compendium that became the main guide to medical practice in the West and the East for centuries.
2. Muhammad Ibn Musa Al-Khawarizmi laid the foundations of modern mathematics through the development of algebra. His contribution was so significant that his name was immortalized in the term "algorithm". The mathematical concepts he introduced were widely adopted by the Western world and became the foundation of science to this day.
3. Ibn Al-Haitham changed the world's understanding of optical phenomena. His systematic study of the nature of light and human vision is recorded in his masterpiece, which became the main reference in the study of optics for five centuries and underpinned the development of technologies such as the telescope and microscope.
4. Ibn Sina demonstrated his genius from a young age with his mastery of various disciplines. His abilities in medicine, philosophy, and science made him a leading intellectual figure whose work remains relevant despite living in a time of political instability.
5. Abbas Ibn Firnas demonstrated the breadth of his scientific knowledge as a physicist, chemist, and musician from Cordoba. His greatest contribution was an early attempt to design a flying device, in addition to various innovations such as a water clock, a primitive calculating device, and a model planetarium for educational purposes.

The innovations and thoughts produced by these scholars reflect the intellectual dynamics of Islamic civilization, which is an important bridge in the development of global science and technology. (Holis et al., 2024)

C. Verses of the Qur'an and Hadith That Discuss Science and Technology

1. QS. Al-'Alaq 1-5

اقْرَأْ باسْمِ رَبِّكَ الَّذِيْ خَلَقَ ١ خَلَقَ الْاِنْسَانَ مِنْ عَلَقٍ ٢ اقْرَأْ وَرَبُّكَ الْاَكْرَمُ ٣ الَّذِيْ عَلَّمَ بِالْقَلَمِ ٤ عَلَّمَ الْاِنْسَانَ مَا لَمْ يَعْلَمْ ٥

The Meaning: Read in (mentioning) the name of your God who created! He created humans from a clot of blood. Read! Your Lord is the Most Exalted, Who teaches (humans) with the pen, He teaches humans what they do not know(Ministry of Religion, 2019). (Kemenag, 2019).

These first five verses are revelations in the form of the words of Allah SWT, which were first revealed to the Prophet Muhammad SAW precisely in Hira Cave on the night of 17 Ramadhan. (Muhtadi, 2020). It is told in Ibn Kathir's book of tafsir, volume 9, when these 5 verses were conveyed to Rasulullah Saw, then the angel Gabriel told Rasulullah Saw to read 3

times, and the angel Jibril pulled and held him until Rasulullah Saw was tired. After completing this revelation, Rasulullah SAW then went home to his wife Khadijah and asked her to cover him from this fear. After meeting the angel Jibril, Khadijah calmed him down. (Katsir, 2017). Ibn Kathir's interpretation emphasizes three main aspects of the verses:

First, these verses symbolize the starting point of the Creator's spiritual gifts to His creatures. They represent the gateway through which God's mercy begins to flow to humanity.

a. Second, these verses serve as a reminder about the nature of human creation. The word "'alaqah," which refers to a clot of blood is used as a means of reflection on the simple origins of humans.
b. Third, these verses underline the generosity of Allah SWT in bestowing intellectual capacity upon humans. The ability to acquire and develop knowledge about something that was previously not possessed manifestation of God's power and at the same time the mechanism through which He elevates the status of humans among His creations.
c. In Ibn Kathir's view, these early verses of Al-'Alaq present a fundamental paradox: humans, who originate from simple substances, are ennobled through the gift of knowledge, a gift that reflects the greatness of the Creator.

2. QS Al-Mujadilah ayat 11

يٰٓاَيُّهَا الَّذِيْنَ اٰمَنُوْٓا اِذَا قِيْلَ لَكُمْ تَفَسَّحُوْا فِى الْمَجٰلِسِ فَافْسَحُوْا يَفْسَحِ اللّٰهُ لَكُمْ ۚوَاِذَا قِيْلَ انْشُزُوْا فَانْشُزُوْا يَرْفَعِ اللّٰهُ الَّذِيْنَ اٰمَنُوْا مِنْكُمْ ۙوَالَّذِيْنَ اُوْتُوا الْعِلْمَ دَرَجٰتٍ ۗوَاللّٰهُ بِمَا تَعْمَلُوْنَ خَبِيْرٌ ۝١١

The Meaning : O you who believe, if it is said to you "Give space in the assemblies," make space, surely Allah will give you space. When it is said, "Stand up," (you) stand up. Allah will surely elevate those who believe among you and those who have been given knowledge to several degrees. Allah is careful about what you do (Kemenag, 2019).

It is narrated in the book of Tafsir Ibn Kathir volume 8 page 828 chapter on the virtues of knowledge and scholars that the caliph Umar bin Khattab assigned Nafi' bin AbdilHarith as governor of Makkah and caliph Umar bin Khattab asked him about the duties he previously carried out before being transferred to be governor of Makkah, Umar said who did you appoint to replace your duties, then Nafi' answered that he delegated his duties to a man named Ibnu Azza, a young man who was a former slave during his jahiliyah era, then after the young man, a former slave, studied Islam seriously, he became known as a Qori', a faraidh expert and also a judge later. With this skill, Umar quoted the hadith of the Prophet Muhammad, which means that Allah SWT will elevate the status of a people and raise it and lower it with the holy book Al-Qur'an. (Katsir, 2017).

3. QS. Al-Ambiya ayat 80

وَعَلَّمْنٰهُ صَنْعَةَ لَبُوْسٍ لَّكُمْ لِتُحْصِنَكُمْ مِّنْۢ بَأْسِكُمْ ۚفَهَلْ اَنْتُمْ شٰكِرُوْنَ ۝٨٠

The Meaning : We also taught David how to make armor for you to protect you from attacks from your enemies (in war). So, are you grateful (to Allah)? (Kemenag, 2019).

From the verse above, it is clear that Allah SWT told the Prophet David about how to make armor for war and how to make war equipment made of iron. From this verse, we also get guidance and valuable lessons from Allah SWT so that humans, especially as Muslims, can use technology for the sake of their religion, Allah SWT, based on the rules that have been set by Allah SWT and do not conflict with the laws of Allah SWT. (Permanent Lecturer at the Muhammadiyah Foundation of Palangkaraya, Faculty of Islamic Studies, 2018).

Furthermore is not surprising that in the 7th century there have emerged many intelligent, active and productive Muslim scientists in developing science and technology, but at that time their existence did not receive special attention in the lives of society and its government so that their existence with the science and technology they mastered did not have time to be followed up. So that the western nations were the ones who finally took on this role by shackling these scientists then they took the knowledge of the Islamic world to study and they realized it in the form of technology so that until now their nation is the one that masters science and technology(Permanent Lecturer at the Muhammadiyah Foundation of Palangkaraya, Faculty of Islamic Studies, 2018).

4. Narrated Words of the Prophet MuhammadBy Bukhari and Muslim

الْجَنَّة إِلَى طَرِيقًا به اللَّه سهَّل علْماً فيه يَلْتَمس طَرِيقًا سلَكَ من

The Meaning : Whoever follows a path in search of knowledge, Allah will make easy for him a path to Paradise (HR Bukhari dan Muslim).

5. Sabda: The words of the Prophet Muhammad narrated by Bukhari and Muslims

أَدْنَاكُم عَلَى كَفَضْلِي الْعَابد عَلَى الْعَالِم فَضْل

The Meaning : The superiority of pious people over worshipers is like my superiority over the lowest of you (HR Imam Tirmidzi).

DISCUSSION

A. Technologi

Based on various views, technology can be understood as a program or tool designed that minimize uncertainty in achieving certain goals. Technology is also a collection of efficient methods in human activities, which arise from the desire to improve the comfort and welfare of life. The concept of technology has existed for thousands of years, although the term was not yet known. The word "technology" itself comes from "techne" (way) and "logos" (knowledge). Technology combines skills, knowledge, equipment, machines, and computers to design, produce, and distribute goods and services. Technological advances drive the need for a more adaptive organizational structure, allowing managers to respond to unexpected situations and

providing flexibility in finding innovative solutions to problems faced.(Julia & Jiddal Masyruroh, 2022). Among the types of current technology that are predicted to change the world in various fields, namely(Fujiyama, 2024):

First Artificial intelligence system or AI is a replica of human cognitive mechanisms implemented on programmed devices to perform human-like reasoning and reproduce similar behavior. This intelligent technology is developed to deal with various problems with a logical approach, including the capability to acquire knowledge, perform deduction processes, describe the complexity of problems, interpret natural language, and even produce creative innovations.

Both networks of connected devices, or IoT, are cutting-edge technological innovations that essentially refer to a global ecosystem of integrated devices and infrastructure that are interconnected in a universal interconnection through an online medium and can exchange information simultaneously. This digital infrastructure is equipped with various components such as detection instrumentation and software that function to establish communication, regulate operations, form relationships, and transmit data between devices as long as there is network connectivity and supports functionality without relying on physical connections, but relying on wireless technology.

The three sustainable energy technologies such as solar and wind power will continue to show accelerated development. In parallel, environmentally friendly technological innovations, such as electric vehicles and sustainable construction materials, will be increasingly dominant in the market landscape. Future technology development trends will focus on formulating solutions that are not only innovative but also environmentally friendly to maintain the sustainability of the planet's ecosystem. Some typologies of sustainable energy sources include solar energy, wind energy, hydro energy, geothermal energy, and biomass energy.

The four progressives in bioengineering and medical technology will open up opportunities for more personalized and effective therapeutic approaches. Technologies such as crispr genetic modification and integrated medical instrumentation communication networks will fundamentally transform the methodology of disease diagnosis and therapy. The future healthcare landscape will be characterized by a moreholistic and more proactive preventive strategies. Some of the main methodologies in bioengineering include genetic modification, tissue culture, DNA amplification via PCR, and fermentation processes.

B. Technologies in an Islamic Perspective

The Islamic perspective positions the development of science and technology as a manifestation of human efforts in exploring the signs of God's greatness. And this is not prohibited by Islamic teachings, but rather stimulates its people to conduct scientific investigations and technological innovations in various dimensions of life.(Hidayat et al., 2022).

Our Muslim scientists such as Abu al-Qasim Al-Zahrawi, a pioneer in the field of medical surgery, whose works are still used today in the field of medicine, Muhammad Ibnu Musa Al-Khawarismi, the creator of the Al-Jabar mathematical method which is still used today, Ibnu Al-Haitam, the pioneer of optics which is still used today, Ibnu Sina, who is a scientist in the field of medicine and science whose work has been a reference for many doctors for centuries, and Abbas Ibnu Firnas The pioneer of the first airplane was a Muslim(Holis et al., 2024).

They have all provided examples and examples in the field of science and technology for us as their next generation in this modern era. Allah SWT has also said a lot through His words so that humans can always learn about various kinds of science and technology to know how greatness. And its glory in various kinds of creations, Allah SWT states this in Surah Al-Alaq 1-5, Al-Mujadilah 11, Al-Ambiya 80, and is also reinforced by the many Hadiths of the Prophet Muhammad about science and technology. (Masood, 2009).

Research and experimental activities in the field of science and technology are seen as a process of exploring the meaning of the signs of the greatness of Allah SWT that are spread throughout the universe. The concept of the caliphate of humans on earth carries the consequence of responsibility to optimize the potential of the universe through the development of knowledge. Islam sees scientific progress not as an entity separate from spirituality, but as a bridge that emphasizes the harmony between the material and transcendental dimensions of life. Thus, the progress of science and technology becomes real evidence of the implementation of Islamic values in the context of modernization, as long as it remains based on the principle of universal benefit and does not conflict with Islamic law.(Hidayat et al., 2022).

CONCLUSION

Alhamdulillahi Rabbil A'lamin This research has been in the process of concluding in the form of answers from this research, namely about technology in an Islamic perspective that formulates problems about the latest technologies that are predicted to change the world in various fields, namely artificial intelligence or Ai, the Internet of Thinks or IoT, sustainable energy sources and environmentally friendly innovations, medical engineering and biological innovations. Then Muslim scientists whoberImportant roles in the field of science and technology, which are currently developing rapidly, include Abu Al-Qasim Al-Zahrawi, Muhammad Ibn Musa Al-Khwarizmi, Ibn Al-Haitham, Ibn Sina, and Abbas Ibn Firnas. Apart from that, Allah SWT has said in the Qur'an and the hadiths of the Prophet Muhammad about science and technology, namely, Qs. Al-'Alaq 1-5, Al-Mujadilah 11, Al-Ambiya 80, and the Hadith of the Prophet Muhammad, which has been narrated by Imam Bukhari and Imam Muslim regarding its meaning. Whoever follows a path to seek knowledge, Allah will make easy for him the path to Paradise, and also the hadith narrated by Imam Tirmidhi, which means The superiority of pious people over worshipers is like my superiority over the lowest of you.

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