# The Internet of Everything from Islamic Perspective

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*Abstract*— Internet of Everything (IoE) is a nexus of "people", "processes", "data", and "things", promoting closer collaboration and enhanced compatibility for the purpose of accelerating the flow of network connections and the information transference associated with them. Despite the immense success of IOE, it seems as though the system still has a few glitches in the aspects of security and privacy, or data protection. The various uses of IoE in maintaining and retaining specific individual data must be closely monitored, as it may be misused by anonymous entities for malicious purposes. This paper proposes a possible and relevant solutions to counteract these problems and ensure that the solution is working parallel to Islam's solutions from the Holy Quran and the Noble Sunnah of Prophet Muhammad. Hence the paper conceptualized IoE as an evolving new technology that is a vital part of everyday life and Islam as well. Therefore, those IoE characteristic for the applications and services associated value multilayer stack are highlighted in the paper. The interlinked IoE technologies that gives machine-to-machine connectivity anywhere and anytime to communicate, exchange information, and complete an action associating with value-based are also highlighted. Finally, the paper reveals that IoE implementation with due consideration to value-based may usher in various ethical and privacy concerns.

*Keywords*— Internet of Everything, Valued-base technology, Islamic Perspective.

## I. INTRODUCTION

Throughout this modern era, humanity has evolved with its technological creations. Generally, society has been changed due to this specific evolution. The people's lives were more complicated and mundane tasks consumed too much of their time before modern-day technology arrived. It was highlighted by Sa'ad, and Abubakar [1] that Islam, which is described as a complete and perfect religion (Qur'an 5:3), has a tendency to scrutinise every new development before accepting it. Regarding technology, it is expected to assist Muslims in appreciating the existence and capability of their creator, as well as in obeying Him through the use of the same technology. Weather there is a pitfall that Muslims may encounter while benefiting from the advancements brought about by the Internet of Things (IoT) remains a crucial area of research.

Furthermore, a plethora of tremendous opportunities and chances are being offered by the technologies that assist people in their daily activities. Our environment is turning into the "Internet of Everything" due to the recent advancements in big data, connection technologies, and smart devices (IoE) [2]. 'Cisco Inc' has highlighted that connectivity and intelligence are now built into everything to give them extra capabilities. "bringing together people, process, data, and things to make networked connections more relevant and valuable than ever before—utilizing information to create new capabilities". In addition, IoE is making unprecedented opportunities available to organisations, individuals, societies, and countries to realise the great value of networked connections among people, processes, data, and things. Additional, a billion objects on Earth have sensors to detect and measure measures, and everything is connected on public or private networks using standard and proprietary protocols. Essentially, various elements and pillars of the Internet of Everything will be covered further throughout the discussion, with an Islamic view of this modern technology [3]. Additionally, according to forecasts, the IoE will have an impact on the quality of life and global economy development. Further, the development of the devices must continuously advance to match customer requirements to allow businesses to supply the product [4].

In this area, there are IoE-based applications and systems available, including smart home and smart health systems, "it's a responsibility of every Muslims to ensure that the message being delivered for call towards Allah is correct and genuine" within all digital sources [5]. Now everyone has access to IoE-based smart devices like smartphones and smart homes. In addition, there are many IoE-enabled devices available for home control and daily activities. Automatic door systems, automatic air-conditioners, and automated security alarms are among the systems used today at home. To IT, everything on the list works via cloud computing, servers, or users with lightning-fast response. This technology therefore requires high-speed internet. It's a small miracle that the world today has 4G, and 5G will soon be a step further.

## II. Valued-based Internet of everything

Technology will be smarter in the future because of the additional networking opportunities, and will not be only computers, laptops, or tablets. the idea that will revolutionise our world [6]. Everything must go online so that experiences and decisions are better. According to Miraz et al. [7] reveals the four IoE pillars are people, data, process, and things. The first element is people. Technology nowadays measures heart rate, sleep, and our daily activities. Also, we have applications where people offer their thoughts or opinions on it. New technologies and applications will try to "understand" our data and provide relevant content so we can solve any problems quickly. Data, the second component. The data is worthless without processing. However, it will prove invaluable when the data are summed, analysed, and classified. According to Evans [6] our total data output in 2013 was more than all human history until 2008. Third pillar: process. Information must be different, depending on who it is being sent to, at what time, and using artificial intelligence, machine learning, or social networks. Finally, things are included. According to forecasts, there will be over ten billion Internet-connected devices by the year 2020. Additionally, everyone will have or own at least six connected devices. Four interdependent dimensions are people, data, process, and things. They don't work on their own; rather, each component amplifies the others. When people use something, the item will generate and create data which are then analysed and utilised to produce personalization. Because of this, it will yield a data-driven decision, as well as new capabilities and an enriched experience.

There is also the Internet of Things (IoT). There are intelligent devices which gather and respond to data via sensors, processors, and communication hardware. There are no human tasks required. Humans only established them and supplied the data and instructions. IoT has seven characteristics. The first major factor in IoT is connectivity. The devices and sensors need to be connected to the internet and another network. It also makes the network and things interactable. The second trait is things. There are tools that can do something and attach sensors to devices or items. The third factor is data. The data is critical as it will be sorted, summarised, and analysed. The fourth trait is communication. The exchange of devices and data which can be examined. In order to produce information, the device must communicate. Now, Intelligence. The intelligence isn't on the devices but in the use of data to solve a challenge, bring benefit, automate a process, and improve something. Also, automation. It means that non-human-assisted automation has taken place. Automatic software update is a great example of this concept. The final trait is ecosystem. Citizen devices and technologies can contribute to the overall ecosystem and societal benefits.

IoE and IoT together make people's lives better by advancing the internet to improve industrial processes and business. IoE allows us to realise public policy goals, environmental sustainability, economic and social goals. Pre-Internet, almost all the devices worked independently, but nowadays, many devices connect to the internet, such as machine-to-machine (M2M), person-to-machine (P2M), and person-to-person (P2P) systems [7].

Also, future digital technologies and physical things will also enable a wide range of applications and services. Internet-oriented, things-oriented (smart things) and semantic-oriented (knowledge). the human internet of everything (HIoE) or industrial internet of everything (IIoE). Palade and Clarke [8]. On the infrastructure side, the IoE has heterogeneous devices which reduce the impact on energy and the environment. Resource-constrained, spontaneous interaction which exhibits sudden, nonhuman attention. In addition, ultra large scale, dynamic, and not reliant on infrastructure and context-aware, are much larger than most of the existing networking systems. IoE allows intelligent systems and intelligent devices to perform independent of context, circumstance, or environment. In conclusion, location-aware, which is the use of location and related information across a broad scope of Internet of Everything connected devices.

## III. the need for Islamic involvement on ioe

The Internet's creation and utilisation has become extremely important to human kind today. So therefore, because of the internet-based platforms like Facebook, Instagram, Twitter, and Snapchat, communication has become a frequent occurrence in everyday life. Social media has numerous advantages in the Islamic perspective. assuming that, the vales of Technological Platform using Islamic ways are it can be a medium of da'wah,, a straightforward way to refer the current fatwa, as a medium that allows us to look for knowledge about our Muslim brothers around the world.

Muhammad used to say: "Deliver it from me even one sentence" (HR Bukhari no.3461). A hadith that spread among Muslims, encouraging them to proclaim the religion, and to give da'wah. In this case, da'wah is separated into far-reaching global outreach. Technology is open to all Muslims, without the community or scholars having restrictions on it [9]. The Internet is a technological platform that allows for da'wah separation on the basis of current situation.

The creation and technological platform also serve as a way to fight Islamophobia. In fact, according to media, the West has used the expression "it separates the negativity of Islam" to help Muslim non-believers avoid information about the religion. Additionally, cooperation has proven to be the most effective method of speaking the truth about Islam. In Surah An-Nahl 125 God says, "Invite others to follow

the right path using both reason and persuasiveness." And your Lord is most aware of those who stray from His path, and He is aware of those who are guided (An-Nahl: 125). It also told Muslims how to preach their faith using intellect and without bias. In this manner, we can see that Islamic media in the form of Al-Jazeera TV, Al-Hijrah TV, and other Islamic media in the form of Youtube exist. To make it easier for the non-Muslim to understand Islam,

Third, we should keep our brothers and sisters around the world in mind. Today we know there are many conflicts like war, political imbalance in certain countries, food crisis, and so on. The invention of new technological devices and the internet has allowed Muslims to send money, food, or volunteer aid to help Muslim brothers and sisters living abroad. Rasulullah mentions in the hadith of Rasulullah "None of you truly believes until he wishes for his brother what he wishes for himself."

(Bukhari &Muslim) To understand ourselves as believers, we must love our brother by helping them.

The other values are that it makes our search for knowledge easier for students especially for those who write papers for their classes. Before, in order to find references, students had to go to the library, which was time-consuming. This new creation and technology platform lets students and citizens to search for education information using just technological devices in their rooms.

Muslims can use the Internet as a tool to get information on the contemporary Fatwa from the Mufti. Malaysian Muslims can visit the web site www.Mufti Wilayah Persekutuan.gov.my to access the current fatwa. Most of the fatwa were based on Mufti Dr. Zulkifli al-Bakri. According to scholars, Muslims now have to travel to different locations to know the fatwa made by scholars. The struggle now is to learn Islamic jurisprudence and then deal with the issue of fiqh. In this way, technological platforms can open Muslim minds about fiqh issues and help Muslims better understand Islamic knowledge.

When it comes to how people use the value creation and technological platform, it could be said that it depends on the person. There are numerous benefits to the technological platform when used for Muslim outreach, including strengthening the community and bringing Muslims together. Islam as the Rahmatan lil A'lam brings peace to the entire universe.

## IV. ISSUES AND CHALLENGES

There are a few difficulties with the Internet of Everything. First and foremost, there is the issue of security. Nowadays, there are many internet-connected smart products, such as smart TVs, smart watches, smart cars, smart household appliances, smart healthcare equipment, and so on. The internet serves as the connecting channel for all of these devices and machines. They were made to make it easier for us humans to go about our daily lives. In terms of security, this is a problem. The act of hacking these gadgets could be an issue [10]. When the security of smart devices is penetrated, the communication will be obtained, modified, and manufactured by unauthorised intruders who have no authority to access such information. Typically, the act of deception in Online-Islamic Content has been investigated in Mahmud and Abubakar [11] and highlighted that, Islamic websites' content can provide clues as to whether or not the website in question is deceptive; knowledge of Islam's history and traditions assisted in the detection of deceptive websites. Furthermore, with regard to security, Talib et al. [12] has thoroughly examined the question of whether or not Mobile Quran App users are aware of the authenticity of these applications. Unfortunately, some developers of the applications do not provide users with information on the Quran's trustworthiness. This brings up an important question: Can people authenticate the apps that they use? This means that information on Quran Apps usage and legitimacy is now public knowledge. Another security concerns that dwells on IoE according to Khan et al. [10] when a smart metre sends information to the internet indicating that a property's power usage has decreased dramatically, this could signal that the house is empty or that all of the residents are sleeping, making it an ideal target for a burglary. This is a strong understanding that all of these smart devices require improved security solutions to address security breaches such as hacking, as cybercriminals may use this gap for malevolent purposes [10].

The second set of difficulties that could arise is in terms of privacy. In an era when everything can be connected to the internet, and everyone has access to all information through numerous channels, Privacy is a major concern. This problem has also arisen as a result of hackers' attempts to obtain this information. They do this malevolent conduct for personal advantage, such as misusing information for financial gain or simply for enjoyment. Personal sensitive information collected from a number of smart devices, such as data from your smart automobile, can be used for identity theft, harassment, or irritation. Hackers can use GPS to track a person's location [10]. Another example is smart healthcare devices, which record their owners' personal information related with their privacy, which can be misused by insurance companies or employers, and all of this data is personal and can only be shared to specific persons or for specific reasons [10]. This demonstrates that personal privacy is in jeopardy. Next, there are connectivity issues to contend with when it comes to the internet of everything. Nowadays, there are so many gadgets that need to be connected to each other, and these devices require a stable internet connection in order to exchange data.

A centralised server authenticates, authorises, and connects different nodes in a network, which is the model

that gadgets use nowadays [13]. For the current number of devices available, this type of model is still enough. However, if the number of devices grows, this centralised architecture will become obsolete, since a bottleneck will occur at the main server, and the money required to operate it will be substantial [13]. As a result, a new sort of communication system is required to meet the connectivity requirements of these gadgets. These has led to an unintended consequence of establishment of new technology like blockchain. Hence cryptocurrency takes advantage of this technology where its implementation from Muslim perspective has been highlighted in [14-16].

Furthermore, the next problem concerns device compatibility and longevity. As time passes, there are numerous methods for communicating these devices that are vying with one another to determine which will become standard in the future. For example, ZigBee, Z-Wave, Wi-Fi, Bluetooth, and Bluetooth Low Energy (BTLE) are all vying to be the most popular mode of communication between devices and hubs [13]. This array of types of connectivity hardware gives rise to which one is the most compatible and reliable in the near future. Companies now have a headache on which one needed to be chosen. These devices need to be compatible with one another and have good longevity.

From the Islamic perspective, a Muslim should not do this hacking act as it will become a hardship towards other people. Allah said in the Quran, "And those who harm believing men and believing women for [something] other than what they have earned have certainly born upon themselves a slander and manifest sin (33:58)". We must not harm others. The prophet also said in his Hadith that "Whoever believes in Allah and the Last Day, let him not harm his neighbour (Sahih Al-Bukhari 6110)". Allah SBW said in the Quran "Oh you who believe! Do not consume your property among yourselves unjustly unless it be a trade amongst you, by mutual consent. And do not kill yourselves (nor kill one another). Surely, Allah is Most Merciful to you". Sources: Quran, An Nisa, 4:29). In conclusion, we must not create hardship for others as we live in a community.

Furthermore, one of the most difficult aspects of IoE scalability is the capacity to introduce new functionalities. By adhering to communication protocols and using a variety of hardware, the quality of existing services will not be harmed during deployment. Throughout the IoE layer, reliability must be implemented. To give the greatest performance, monitoring and evaluation are required for functionality, speed, communication, security, and application. Furthermore, the expanding IoE development and deployment can be a factor in IoE application and device management. In terms of management, maintaining compatibility across IoE levels must be improved [17]. With the rapid growth of IoE, it arises some concerns in terms of security, privacy and truest. According to Alberti [18], the

data collected from IoE based devices sensors can carry client privacy's data. For examples, considering a personal area health monitoring system that from timely sends the state of certain patient to an hospital. This situation shows the complexity of the security and privacy in IoE. Quranic solution to this challenge. Islam is certainly a complete way of life which also encompasses this area
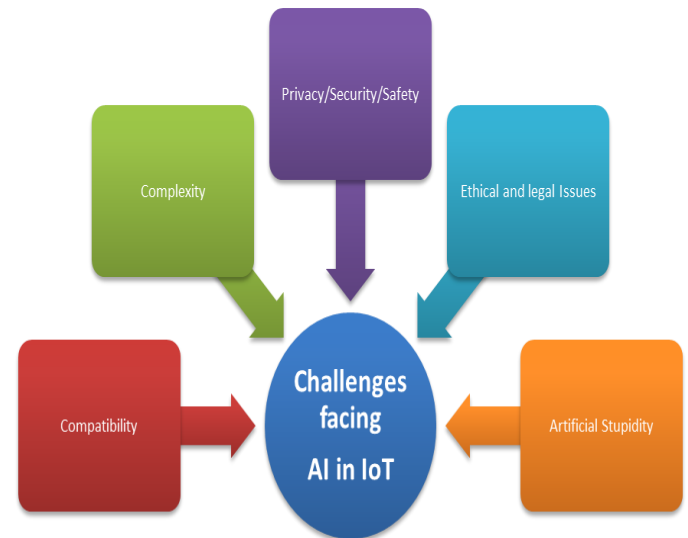


*Figure 6: Challenges facing in IOE*

V.  PROSPECT OF VALUE-BASED IOE

There are several solutions for the challenges of security, privacy, connectivity, and compatibility that are relevant to our issue of the internet being everything. For starters, we are aware that if we use the internet on our smartphone or computer, our gadget is vulnerable to hackers and has a proclivity to compromise our security. However, it can be fixed by installing an application or software that can safeguard us, such as BitDefender, which is an anti-virus application. Clifford Colby, according to Cnet.com, wrote an article on the best antivirus protection for Windows 10 in 2019. He noted that there are several options for anti-virus software to install, with Bitdefender Antivirus being one of them. Anti-virus apps for mobile phones are similar to those for desktop computers and should be used as a deterrent rather than a preventative step [19]. The functions of both platforms are largely the same in terms of protecting our security from attack. If we want to use the internet for everything, we'll need this programme to keep our data safe from hackers.

Second, in terms of privacy, we can protect our personal information by changing our password. When we link to the internet, our entire database is accessible to a third party. It means that a hacker will be able to simply track our personal information. This problem can be rectified by updating our

passwords, such as email and social media passwords, once a month. Passwords containing personal information, on the other hand, are more likely to be compromised by an attacker. To protect their information, all internet users should be aware of the importance of using strong passwords rather than personal information [20]. We must also update our computer, any programme, and the most recent update will incorporate security updates from the previous version, making our privacy more confidential and secure when using the internet [19].

The adoption of a connection technique in our device, such as Bluetooth, which uses the 2.4GHz spectrum in the ISM band, is the next way to overcome connectivity difficulties. It's been widely utilized for wireless connections, and it could be one of the IoT connectivity solutions. In addition to employing Bluetooth communication, we have iCloud for iOS and the Share-It application to share data and communicate with one another. However, Wi-Fi is one of the most frequent kinds of communication for connectivity. Wi-Fi makes our lives easier in the IoT era, and it has a wide range. For IoT connectivity, cellular 5G networks have become an ubiquitous solution. According to Pham 2019, she stated on the CNN business website that China has just turned on the world's largest 5G network, which would provide users with ultra-fast service.

Finally, IoT as a solution to the challenge of device compatibility and durability should promote the openness and compatibility environment in this new modern world. The developer must be able to accommodate a variety of devices and create a single-process chip that is fully compatible when utilised by the user. Device management from an IoT platform provides specific features that can help devices and software avoid downtime and maintain productivity, such as the ability to configure, regulate, and update software to ensure device compatibility with the most recent upgrades.

From an Islamic standpoint, every Muslim should devise a solution to every problem. As Muslims, we should pursue knowledge and broaden our horizons in this world. "Increase my knowledge," Allah declared in Quran 20:114. As well as Allah Said in the Holly Quran in chapter 23 "Is one who is devoutly obedient during periods of the night, prostrating and standing [in prayer], fearing the Hereafter and hoping for the mercy of his Lord, [like one who does not]? Say, "Are those who know equal to those who do not know?" Only they will remember [who are] people of understanding". We may simply give a suggestion of how to tackle this difficulty if we have understanding in this sector.

## VI. FUTURE DIRECTION

According to CISCO, an American multinational technology conglomerate that develops, manufactures, and sells networking hardware, telecommunications equipment,

and other high-technology services and products, more than $14 trillion could be generated in the next ten years through the implementation of IoE with machine-to-machine (M2M), person-to-machine (P2M), and person-to-person (P2P) communications. The difficulty, according to Dave Evans, a CISCO Futurist, is not the 'things,' but the "networks involving people, process, data, and things" that are at the centre of the Internet of Everything.

Based on the findings, it is evident that the Internet of Everything is rapidly turning into something that is relatively useful and efficient, but that it has the potential to become highly harmful in terms of internet security in the future. With the advancement of the Internet, there will be a greater exposure to the world of hacking, and it is extremely risky since anyone might easily steal your information available on the internet if you do not use sufficient security. This issue would not be a problem if one's own faith was strong, as stated in Surah at-Tawbah verse 9 of the Quran: "O you who believed, have fear of God, and be among the truthful." And "And it is not righteousness to enter houses from the back, but righteousness is [in] one who fears Allah. And enter houses from their doors. And fear Allah that you may succeed." Source: Quran (2:189).

Once a sincere believer understands this verses, they will realise that any harmful examples that can occur on the internet should not be followed, particularly hacking in this situation, as it is a violation of someone's privacy and goes against Islam's teachings. The market will see a slew of new Internet of Everything gadgets, but one thing that worries us as Muslims is the potential for addiction to all of these innovations, which could divert us from the path of righteousness. We should always be careful of our acts and be reminded that "Then, indeed, your Lord, to those who have done wrong out of ignorance and then repent and mend themselves – indeed, your Lord, subsequently, is Forgiving and Merciful" (Surah an-Nahl, verse 119)

## VII. CONCLUSION

To summarise, significant breakthroughs have occurred in this planet, particularly in terms of technology. One of the best examples is the Internet of Everything (IoE) technology, which makes networked interactions more relevant and valuable. At the same time, it has a significant impact on society as a whole because it serves to improve people's quality of life. However, because information obtained via the internet may be analysed without restriction, there will be severe consequences for other users, particularly in terms of security and privacy. Furthermore, reasonable precautions should be taken to guarantee that this system or advanced technology is not damaged by any unauthorised individuals who are prone to doing wrongful acts such as hacking and other forms of cybercrime. Apart from that, we offered a number of remedies to problems

that everyone in the globe might face. Indeed, if someone takes advantage of the innocent party or the user of this technology, it is quite unfair. According to the Islamic viewpoint, it is likewise forbidden to injure another person, as the Prophet stated in his Hadith, "there should be neither harming nor reciprocal injury." As a result, every action in one's life, whether good or negative, must be held accountable. As a result, as clever users, we must put all of our superior technology to good use and contribute as much as we can to society's development.

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