Application of Privacy, Security and Ethics in Islamic Concerned ICT

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Abstract: Information and Communication Technology (ICT) plays an important role in development of the modern society which carries moral obligation to drive the society for an authenticated output. Ethical issues are directly related with ICT to diminish the unauthenticated uses of ICT applications. Ethics, rules, *shariah* and guidelines about the use of computers have been debated for years and many computer associations have existed from that; ACM, IEEE, Australian Computer Society, British Computer Society and others to assist the societies to restore and adapt the principles. Generally, all of these ethics that have been brought up by these societies are to preserve human rights, privacy and confidentiality which have been mentioned long ago in the *Qur'an*. Allah, the Most Merciful has cited in the *Qur'an* the *shariah* or standards for all human beings to live peacefully without harming others (security, privacy, authority, ethics) and perform *ibadah* as *khalifah*. The ACM for instance, has prepared the guidelines as ethical system for societies which cover moral imperatives and professional responsibilities for the computer professionals as the measurement of the code of conduct. Hence, from the revision and analytical reflection, it is examined and explored the moral value as well as the impact of Islam's prospect especially of the ethical issues by considering the Islamizationa reality.

Key words: Ethics · Islam · Privacy

INTRODUCTION

There are two main ways of communication in order for humans to accomplish the purpose of their creation: *habluminallah* and *habluminannas*. *Habluminallah* is defined as the relationship between man and Allah. On the other hand, *habluminannas* is the form of human relationship with one another. It comprises of *akhlaq* (ethics) and *adab* [1].

Allah *s.w.t* is the Utmost Creator who creates man and other creatures in the best form. Allah *s.w.t* is the only God worthy of worship. Humans are obliged to be a good *Abdillah* (servant) to Allah *s.w.t*. Thus, human *habluminallah* relationship is very pertinent.

Another responsibility that Allah *s.w.t* grants to humankind is to be the *khalifah* (vicegerent) on this earth according to Islamic *Shariah*. To achieve the role of *Khalifah*, humans need *habluminannas* relationship to communicate with one another. These relationships are very connected to one another. The communication must start with *habluminallah*, as *abdillah*, then *habluminannas* as *khalifah*. In administering and managing this world, man should place the relationship with Allah *s.w.t* as the highest rank of priority. All decision-making should consider commandments and prohibitions ordained by Allah *s.w.t*. Information and Communication Technology (ICT) is the major technology in decision-making and communication tool to assist human beings in fulfilling their relationships in terms of *habluminannas* and *habluminallah*.

Both relationships must have rules and *adab* (ethics). *Habluminallah* requires *taqwa* (God Consciousness) and *ikhlas* (sincerity), whereas *habluminannas* needs good moral conducts like *amanah* (trustworthiness), honesty (truthfulness), equality, equity, mutual consent, respect, sacrifice, caring, sharing and concern on legality.

ICT could assist us humans to play the role of both *Abdillah* and *Khalifah*. There must be ethics in ICT from the Islamic perspective. In any relationship, there must be *adab*. Ethics refers to rights and wrongs in our relationships, be it *habluminallah* and *habluminannas* [2].

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Role of *Abdillah* and *Khalifah*: Humans must carry out their two major responsibilities, which are *Abdillah* and *Khalifah*. Allah *s.w.t* says in *Surah Al-Baqarah* verse 30 that He would create mankind to be the vicegerent: *"Behold, thy Lord said to the angels: "I will create a vicegerent on earth." They said: "Wilt Thou place therein one who will make mischief therein and shed blood?- whilst we do celebrate Thy praises and glorify Thy holy (name)?" He said: "I know what ye know not."*

However, the angels inquired why Allah *s.w.t* created humans as *Khalifah* as they will do injustice and mischief on earth. Allah *s.w.t* answered that He knows what they do not know.

Allah *s.w.t* sent His Prophets among the mankind to guide them. Thus, in dealing with ICT tools, humans must ensure that its use and development enhance their role as the *Abdillah* and *Khalifah*. ICT development and deployment must adhere to the guidance from Allah *s.w.t*. A direct example is the development of a system that triggers and alerts users the time for prayers and to identify the direction of *Qiblah* etc.

Khalifatullah: The word *khalifah* also refers to the successor or representative of Prophet Muhammad s.a.w. This person acts as the head of state for the Muslim *Ummah*. Another title for the *Khalifah* (Caliph) is *Amir Al-Mu'mineen*, which means 'the leader of the believers'. Nevertheless, the definition of *khalifah* is not confined to leaders only [3].

Allah *s.w.t* says that all humans are considered as *khalifah* which means that they representatives of Allah on earth: *"He it is who hath placed you as viceroys of the earth and hath exalted some of you in rank above others, that He may try you by (the test of) that which He hath given you."* (*Al-An'am*:165)

Each human must observe and is held responsible for his/her actions. Humans must be aware what the lawful actions and the prohibited actions are according to the Islamic Law. Thus, the adoption and implementation of an information system in an organisation must adhere to Islamic law and rulings, like not creating digital divide or gap among the employees etc.

Each person is created differently from one another even though one's siblings are from the same parents or twins. Allah *s.w.t* has His reasons and rationale behind every creation. In *Surah Az-Zukhruf* verse 23, Allah *s.w.t* explains the rationale for man to be of different rankings: *"It is We Who portion out between them their livelihood in this world and We raised some of them above others in ranks, so that some may employ others in their work."*

This does not mean discrimination since Allah *s.w.t* mentioned in the *ayah* above that people should help, assist and facilitate one another in good works. Thus, technological innovations must develop systems for disabled people (special people) as well. Examples are the sign language system for the mute and audio interfaces for the blind. In this manner, the integration of information leading to knowledge and skills will be complete as it comes from qualified people despite one's handicap.

Islamic Science Beyond the Centuries: Allah *s.w.t* says in *Surah Ali-Imran* verse 110: *"You are the best community evolved for mankind, enjoining what is right and forbidding what is wrong"*

Guided by the word of God and the Prophet, the Muslim community has a mission to create a moral social order [4]. This command has influenced Muslims to practice good deeds throughout the centuries, providing a rationale for political and moral activism. From as tiny as an atom to as enormous as a rocket, Muslims lead the nation to discover new things. That tradition and culture should continue. Muslim ICT experts must invent and venture into the computerisation of Islamic products like the electronic Islamic banking or Islamic mobile banking. Following the footsteps of al-Kindi, Muslim ICT experts should also embark on cryptography, security and its devices.

ICT experts should discover the technological innovations and the gap that these inventions could be extended further and/or discover the alternative technological devices. The underlying principle must stay the same, i.e. the ethics and Islamic ICT philosophy.

Guiding Principles in Ict Based on Islamic Teachings: From the Islamic perspective, guiding principles in ICT must be based on Islamic Philosophy which is from *al-Qur'an* and *as-Sunnah*. There are three divisions derived from the ICT guiding principles: ethics, security and privacy.

Al-Qur'an, the Absolute Information "Knowledge Base": Al-*Qur'an* is the book of guidance. Allah *s.w.t* says in *Surah Al-Baqarah* verses 1-2: *"Alif Lam Mim. This is the Book, in it is guidance sure, without doubt, to those Who fear Allah."*

The *Qur'an* the most sacred book for Muslims, is the most complete and comprehensive guidance for people to refer to. It comprises all aspects in human life including biology, ICT, laws, social, politics, business, economics,
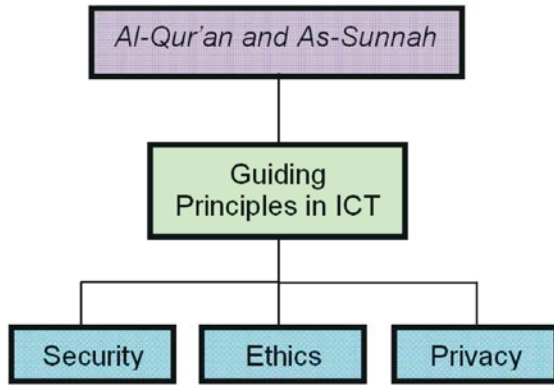
Fig. 1: Model for Ethics, Security and Privacy from the Islamic Perspective
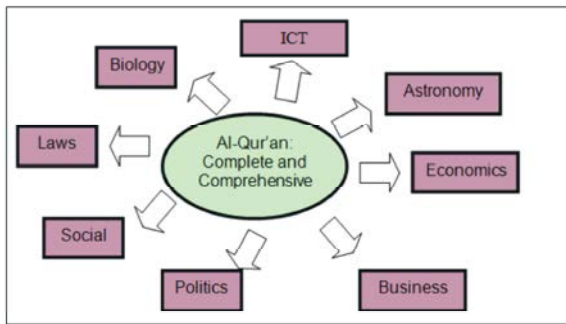

Fig. 2: Examples of knowledge branches in *al-Qur'an*.

astronomy and others. The *Qur'an* itself was not written by human beings but Allah *s.w.t*, who created all creatures. Allah *s.w.t* knows all the knowledge needed by man to survive in the world and also knowledge to be His vicegerent.

ICT has become an integral element in the Muslim life. ICT tools could be used for Islamic purposes like research collaborations through the Web and broadcasting of news. Thus, the Muslim *ummah* need a proper guideline and guidance in developing and applying the ICT tolls and technology.

Ethics

Ethics from Islamic View: The fact that Prophet Muhammad s.a.w. said that the purpose of him being the messenger was to perfect the magnificence of *akhlaq*, indicates that moral values and ethics are very much central to the Muslim life: *"I've been sent to perfect good character."* (Imam Malik)

These values must be incorporated at every point and dimensions of ICT [5]. ICT must not only consist of the hardware and software, but also the peopleware and its heartware.

Thus, it shows that *akhlaq* should be highlighted as the most important element in all phases of human life. In making any decision for everyday life, man must consider whether he is aligned to ethical values or otherwise. The concept is similar to the principles in ICT. Any decision for ICT implementation must not create gaps and injustice or exposed to abusive acts.

Ethics is defined as the study of what constitutes right or wrong behaviour [6]. It is a branch of philosophy that focuses on moral values. Moral principles are necessary to be applied to our daily life. Moral codes must follow the Islamic principles-*al-Qur'an* and *as-Sunnah*. ICT ethics, sometimes referred to as cyber ethics, are still limited to organisations. Societal impact and use of ICT must also be included, even though no doubt ICTs are pushed to the society by organisations.

Within an Islamic context, the term most closely related to ethics in the Qur'an is *khuluq*. *"And undoubtedly, you possess excellent manners"*. (*Al-Qalaam*:4).

Al-Qur'an also uses a whole array of terms to describe the concept of goodness: *khayr* (goodness), *birr* (righteousness), *qist* (equity), *'adl* (equilibrium and justice), *haqq* (truth and right), *ma'ruf* (known and approved) and *taqwa* (piety). Pious actions are described as *salihat* and impious actions are described as *sayyiat* [7].

This array of terms could make up the list of criteria for ICT implementation and deployment. Possible questions are; What goodness would the proposed system bring to the organisation and the *ummah*? What are the rights of people in relation to ICT (privacy and Islam)? To what extent is equity achieved and improved with the implementation of ICT? At what level, could ICT improve the truth and right of the owner and his/her data, information and knowledge? To what extent could ICT protect the data? Is there any possibility that a system could lead human astray (lagha, wasting time, etc.)?

All these questions are very much related to wisdom, which means the user's ability to make the best and most proper use of knowledge in establishing the basis for right and purposeful decision making. It involves exercising wise judgments between right and wrong and between good and bad, considering all pertinent factors and their relationships and being consistent with the *Shariah* and Islamic values.
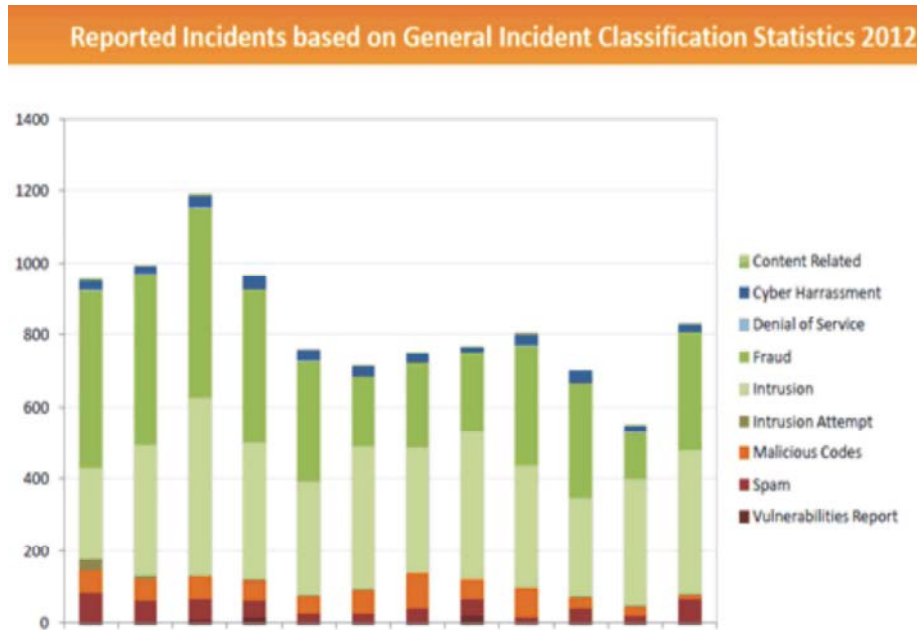
Fig. 3: Incident Statistics 2012 [11]

Differences Between Islamic and Western Ethical Standard: Western ethical standard shared some similarities with those based on the Islamic principles. The values are trustworthiness (*amanah*), honesty (truthfulness), equality, equity, mutual consent, respect, sacrifice, caring, sharing and concern on legality. Nevertheless, the differences are God-Consciousness (*at-taqwa*) and sincerity (*al-ikhlas*). Finally, Allah *s.w.t* is the final word for any judgement. Allah *swt* says in *Surah Ali-Imran* verse 102: *"Have Taqwa of Allah as is His due, die not except as (true) Muslims.)"* And in *Surah Al-Bayyainah* verse 5: *"To worship Allah, offering him sincere devotion"*

Humans are ordered to do nothing more than to serve Allah, to worship Him alone with sincerity and with purity of faith, to attend to their prayers and to pay the stated alms. That is surely the faith of the upright nation (http://www. islamworld.net/qutb/s98.txt).

ICT should enable humans to perform *ibadah* as an act of worship servicing Allah *s.w.t* alone. ICT technology could be applied as a mechanism to pay *zakat,* like zakat payment through short message service (sms), automated calculation of *zakat* and electronic notification of its due payment since *zakat* is tax deductible and its payment is recorded online and connected to the tax form as well.

Internet and Morality: Internet provides human access to the vast amount of information worldwide. However, we cannot control the kind of information since the Internet is not controlled by anyone. Thus, the Internet has all types of information and objects: positive and negative values. Positive values of the Internet cover mostly academic sources. Negative values cover pornography, gambling and embezzlement. Users need to make a choice on using it wisely. The choice depends on the user's intellectual. The best filtering tool is *iman* and *taqwa* or heartware.

No doubt the Internet allows people to express their freedom in almost everything, like speech and choice. In Islam, what is counted and judged is how humans exercise their freedom and purpose. Freedom and choice are related to responsibility and everyone is accountable and responsible for his freedom and choice. Basically freedom and choice is a test in life.

Allah *s.w.t* says in *Surah Asy-Syams* verses 7-10: *"The human soul-the way He molded it and inspired it with knowledge of its evil and its good - bears witness to the fact that indeed he, who cleanses it [of all impiety] shall be successful while he, who corrupts it shall face doom."*

A hacker is said to follow ethics when he does not commit theft, vandalism, breach of confidentiality and when he cracks the system in the name of exploration. When he hacks with permission, he will be known as white hacker. The best guide for exercising freedom and making choices is given in the *Qur'an*.

Activities in Cyber Space: Cyber space without border invites crimes as the Internet grows. Figure 3 shows the recorded cyber crimes that took place in 2012 [8]. Unrecorded cyber crimes are presumably more. However, it can be concluded from figure 3 that intrusion is the most top ranking cyber crime. A huge number of confidential data are made available as web-based.

Malaysian Computer Crimes Act 1997 (CCA 1997): A summary of the offences relating to misuse of computers as extracted from "Explanatory Statement" of the CCA 1997 are as follows:

- Seeks to make it an offence for any person to cause any computer to perform any function with intent to secure unauthorised access to any computer material.
- Seeks to make it a further offence if any person who commits an offence referred to in item with intent to commit fraud, dishonesty or to cause injury as defined in the Penal Code.
- Seeks to make it an offence for any person to cause unauthorised modifications of the contents of any computer.
- Seeks to provide for the offence and punishment for wrongful communication of a number, code, password or other means of access to a computer.

Privacy: Privacy in the cyber world is most essential as one can enjoy, explore, disclose, use and disseminate other personal information for bad intention. In this situation, the intention might be for embarrassment, fake the genuine information and others.

Personal data can used to commit identity theft, in which an impostor creates fake financial accounts, runs up enormous bills and disappears leaving only a wrecked credit report behind. Personal information, such as home addresses and telephone numbers, can be used to harass and stalk.

Furthermore, the disclosure of personal information may not be used as mentioned above. Some people will use personal information to embarrass others through disclosure of their medical treatment. Such a disclosure is stressful, as the personal details posted on the internet travel the world in a very quick manner.

Privacy from Islamic View: Islam respects the privacy of each Muslim including child. Allah *s.w.t* says in *Surah An-Nur* verse 27: *"O ye who believe! Enter not houses other than your own, until you have asked permission and saluted those in them"*

And in *Surah Al-Hujurat* verse 12:*"O ye who believe! Avoid suspicion as much (as possible): for suspicion in some cases is a sin: And spy not on each other behind their backs. Would any of you like to eat the flesh of his dead brother? Nay, ye would abhor it...But fear Allah. For Allah is Oft-Returning, Most Merciful."*

From these two verses in the *Qur'an*, it can be concluded that Islam emphasises the importance of privacy. Islam teaches us to respect the rights of others. Invasion of privacy gives a major impact on the society [9].

Privacy

Internet and Computer Users: The growth of computing technology especially the Internet era has made possible the accumulation and information of vast amounts of data on each individual. This situation has affected both the general public's view of privacy and the issues of protection of personal information.

Personal information privacy becomes a big issue between people and the government. It is because the government has full details of the citizen's birth, marriage, health, ownership of houses or properties and even criminal record, if any. However, all records mentioned above are necessary to carry out various activities for the social and public life. Hospitals keep their patients' important data and record, some pharmaceutical companies may abuse these records for their business purposes.

This privacy invasion technology includes all the means to hear the communication of others and also the message of others and worst of all they alter the messages. The use of any electronic devices to listen to human conversations without permission is illegal. Any communication between two parties through the internet, wireless or any form of communication can be tapped and altered by a third party.

In fact, Islam has clearly come up with its guidelines on how to handle the privacy of others. Allah *s.w.t* says in *Surah An-Nur* verse 27:

Workplace

Physical Surveillance: Computer-users face monitoring problems at their workplace for their use of e-mails or the Internet. Organisations implement physical surveillance in offices to monitor their employees as organisations own the ICT facilities and that facilities should not be abused. Yet organisations should inform their employees of the use of any surveillance equipment.

E-mails and Internet: Organisations provide emails to facilitate the effective communication among employees internally and externally. The access to the internet is given to employees to assist the employees in their work-related activities in making their work effective and efficient. However, the employees may abuse the emails for purposes other than work activities. Organisations may track and monitor their employees' emails and surfing activities, but notice must be given. It is the obligation of the organisation to protect the value assets and yet any monitoring must be made known to the employees. Since emails are valid and considered official, employees must be notified that tracking of the content is done. The right to track and monitor must be formally expressed in writing and made known to the employees.

The use of the Internet is the same as the use of e-mails. Employees must be notified that their surfing activities are being monitored and logged. Keeping them uninformed means infringement on the part of the organisations. Thus, organisations must be aware that employees have their privacy rights at the workplace, even though the premise is owned by the organisations.

Spamming: Spamming is one of the popular trends in email activities. Computer users claim that spamming is legally right but morally wrong. Spamming is the e-mail generated by systems done by companies to promote their products. The use of spam is viewed as unethical as each individual has the right to e-mails without advertisements.

Intellectual Property: Intellectual works such as multimedia, article, picture, song, or any pieces owned by others are considered as intellectual property. By right, we should respect the property of others either tangible or intangible. Nevertheless, in cyber space, it is difficult to protect intellectual properties as one can copy and paste articles without acknowledging the writer and download music and videos without paying.

Islam recognises private ownership, allows man to own most assets, forbids unlawful copying of the work of others and encourages the use of the intellect and permits receiving payments for teaching others [10].

The rules of Intellectual Property Law in Islam consist of five areas. First, those who published their work are most entitled to right. Second, publishing in intellectual activities need handicraft effort. This means that ideas need to be written down on paper to be protected.

Furthermore, the effects of offering protection to the rights would not permit the publishers utilizing it without consideration. It recognised the right to exploit his property for a profit within a specified period. Next, the maximum period of protection from the life of the author and 50 years for his beneficiaries was after his demise [6]. Lastly, the owner has a right to dispose it by copying, donating and selling.

Intellectual Property Law in Malaysia: Intellectual Property Law covers the following:

- Private knowledge as wealth and its subject to ownership.
- Intellectual Property cannot be used freely without the permission of the owner.
- Buyers only have the right to benefit from only the copy he bought within certain period of time.
- Those who print, copy, sell and trade any intellectual property should be punished [10].

Security: Security from Islamic View: Allah *s.w.t* shows us how to protect ourselves from our enemies through the story of Zulqarnayn. Allah *s.w.t* commands Zulqarnayn to erect a wall and lit fire to it. In our IT security, firewalls have become a very important technology to protect users from external and internal attacks [11].

Islam stresses on the significance of security in whatever aspect to protect humans and other inhabitants in this world. We are exposed to danger and we lack the security tools to protect our properties.

Besides this, Muslims should take precautionary steps to avoid any damage. Planning is the best example to protect the computer system. In IT security, some mechanism is to deter hackers from attacking the system. In the *Qur'an*, Allah *s.w.t* explains meticulously how He uses light to deter *syaitan* or *Jin* from 'sniffing' information or knowledge from the heavens.

Security: Internet Users: The internet is very popular since it uses the standard technology called TCP/IP. Nowadays, internet users total more than 1.5 trillion people and this figure keeps growing especially in developing countries. It applies almost everywhere, to any gadget implant and most important to any kind of people. The internet can be abused by anyone with ill-intentions [12].

Information security in general is defined as the process of protecting the confidentiality, integrity and availability of data from accidental or intentional misuse [6]. This means that a combination of technical and non-technical approaches have been designed to reduce the risk to the information system that increasingly has open system architecture.

For example, a bank that offers its customers an online, interactive Website to manage checking account and credit cards opens itself to the threats of forged e-mails that appear to be from the bank but are in fact a clever attack to harvest the user IDs and passwords needed to access the site. The credit card holders take a high risk when they make a transaction via web pages. A party might intercept the credit card number and password when one buys a product through electronic commerce. However, with the growth of the e-commerce, the owner makes an effort to ensure that his website has more security tools. For example, https: is more secure to transactions for payments rather than http. The letter's' means secure.

Other attacks in recent years have included virus and worm outbreaks that prevent internal users from accessing the systems they need to perform their jobs. Thus, it needs IT staff to find the source of the problem and repair the damage.

Activities in Cyber Space: CSI/FBI report revealed that the greatest financial loss ($55 million) came from virus attacks. The second most prevalent crime ($26 million) was the Denial of Service (DoS) attack. Only 20 percent of companies experiencing an attack reported it to the authorities-down 10 percent from 2003.

Formal Security Testing Models: The common criterion is the recent standard for Formal Security Testing Models. It provides a common language and structure to express IT security requirements and enables the creation of catalogues of standards broken down into components and packages. Common Criteria also breaks apart the functional and assurance requirements into distinct elements that users can select for customised security device implementation.

Using this framework, users and developers of IT security products create protection profiles (PPs) as an implementation-independent collection of objectives and requirements for any given category of products or systems that must meet similar needs.

CONCLUSION

The application of Islamic Ethics, rules, *shariah* in ICT would be the generous contribution to develop a good society. A details elaboration of ICT based Islamic teaching; Ethics, privacy and security are discussed in this research. From this analysis it can be concluded that the Muslim IT professionals should not find so much of a conflict to adapt to the Islamic ethical system and they must be able to produce and propose ethical system based on Islamic perspectives.

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