Information Security in ICT from an Islamic Perspective

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Abstract: *The primary objective of the study is to link, Islamic work ethics to computer use ethics. This paper will give intention and look at; to review the underlying concepts of ethics and Islamic ethics for computer usage. To find out some extremely related ethical issues of computer use such security and its clarification in point of Qur'an and Hadith. To suggest some ideas for managing these ethical issues in Islamic way. This paper seeks to analyze the nature of information as put onward using the Islamic worldview, and also study the concept of CIA (Confidentially, Integrity, Availability),this paper also give explanation on Evidentiary Rules: Integrity, Availability and Non Repudiation Measures.*

Keywords: Information security, ethics, Islam, piracy

1. Introduction

With new communication technology being invented in a fast paste, new information security issues arise. You can hardly find anyone nowadays without any type of communication, whether it's a smart phone, laptop, PC, notepads or tablets, communication at this time and age is as easy as ever, and with that, protecting information is getting harder and harder. The main issue that we study and try to identify it is regarding how computer affects the ethical issues of the society. Computer users always facing ethical challenges as there is growing numbers of tools and technologies ,these issue can be privacy ,security ,honesty ,integrity, computer crime ,this issue can be explain from Islamic perspective .in this paper we will discuss several problems on computer use issue among these issues is security which is our concern in this paper, internet security and computer network communication that can be manipulated and access from intruders. Ethics is a branch of philosophy and attitude that is troubled with human manner, more expressly the behavior of individuals in society. Islam places the highest highlighting on ethical values in all aspects of human life. As a Muslim we should always refer to the source of Islamic legislation and teaching in every aspects of our life .as a Muslim we must carry on with us our Islamic thought and believes in any condition and circumstances, for example when we deal with information security issues. The Web and networks has created a suitable international background for people to work, socialize and communicate, learn, buy, and sell, It been used as a tool to breach privacy, gain to possession of property illegally, battleground for cyber warfare, and in various cases, cause loss of life. The field of 'information ethics' was established to limit this negative impact.

2. Literature Review

Research about computer ethics is not isolated from research about Islamic ethics. In this literature review, we provide a variety of definitions for computer ethics from different authors by years. All of them agreed to use the concept of policy can be implemented in technology use [2].

Recently the information security issue is about penetration, most high penetration rate countries are North America and Western Europe. In these countries cybercriminals make money by stealing bank information, the statistic shows different studies 70% with Sinowal Bot attacks, 40% of the victims of attacks by spy Eyes Bots collecting banking details. Recently many bank and big company and auction such e-bay had face many problem in their network, they face data breach, these intruders try to steal customer detail such as bank account. Islamic teachings are prohibited as from breaking any security system, it can be information and computers security so is prohibited (HARAM), Quran has mentioned [3].

These are some Quranic verses we use them to show that in Quran Allah mentioned about the ethics.

وَلْتَكُن مِّنكُمْ أُمَّةٌ يَدْعُونَ إِلَى ٱلْخَيْرِ وَيَأْمُرُونَ بِٱلْمَعْرُوفِ وَيَنْهَوْنَ عَنِ ٱلْمُنكَرِ ۚ وَأُولَٰئِكَ هُمُ ٱلْمُفْلِحُونَ

Let there arise out of you a group of people inviting to all that is good (Islam), enjoining Al-Ma'ruf (i.e. Islamic Monotheism and all that Islam orders one to do) and forbidding Al-Munkar (polytheism and disbelief and all that Islam has forbidden). And it is they who are the successful.

Quran 2:104

The punishments very clear for those who are interrupting some properties such as (information) security

لَّيْسَ بِأَمَانِيِّكُمْ وَلَا أَمَانِيِّ أَهْلِ الْكِتَابِ ۗ مَن يَعْمَلْ سُوءًا يُجْزَ بِهِ وَلَا يَجِدْ لَهُ مِن دُونِ اللَّـهِ وَلِيًّا وَلَا نَصِيرًا

It will not be in accordance with your desires, nor the desires of the People of the Scripture. He who doeth wrong will have the recompense thereof, and will not find against Allah any protecting friend or helper.

Quran 4:123

3. Information Security-The Theoretic Context

When we measure the information security we will value the information itself. The more individual and organization value their assets, the bigger their concern, there are many security definition and meaning. The most common definition is protection from a wide range of threats and considering information are asset to insure business continuity.

CIA, confidentiality, integrity, availability holds the meaning for information security. IT security is defined as the protection of confidentiality, integrity and availability. Information security is complex issue and it is deal with Confidentiality, integrity, availability (CIA).

Principle of Confidentiality: As outlined by the British Standard above, the principle of confidentiality is to ensure that information is accessible only to those authorized to have access.

The information security measures need to assurance that information is being transmitted from a known source to a planned recipient only .This means that information in all of its forms (electronic or else), and in all of its states (stored, transmitted, in-use), and in all of its locations (filing cabinet, printouts, computer storage, disks), must be protected from not acceptable access [3].

Principle of Integrity: Integrity principle seeks to reserve the correctness and entirety of information and the genuine ways in which it is processed. Integrity so has to do with the validity of the data and is concerned with whether it has been modified since its construction. Under this purpose, any security procedures must enable such information assets to be saved, used, transmitted or processed without cooperation, alteration, or corruption. Loss of integrity-including the loss of accuracy is potentially damaging [3].

Principle of Availability: Furthermore, information resources need to be available when they are needed. The challenge is that such information resources may not always be there when the owners or the users need to refer to them due to many things on purpose or otherwise. This failure of availability may turn into a loss of efficiency. As a goal of information security, availability principle seeks to guarantee that authoritative users have access to information and connected assets at whatever time necessary. The information and information resources must therefore be in a usable presence [3].

4. What are Ethics?

Ethics is a term used to help determine what people should and shouldn't do and how to behave or, in a more basic clarification, what is considered as good and what is bad behavior. Ethics deals mainly with human behavior rather than opinions or feelings. Ethics is considered a perception rather than a science or an epistemology. Ethics deals with real behavior: as one may feel like acting in a certain way, one may also inspect the ethical "quality" of said behavior, and then based on that, decide to act in one way or the other. Only the final behavior will be considered from an ethical perspective, as in the action will be considered from an ethical perspective rather than the point of view, feelings or thoughts.

Action or behavior must come willingly. An action taken under limitation or tightening is not exposed to ethical assessment. Ethics is essentially about how we deal with one another and how we take care of common resources. Ethics involves demonstrating joint respect, empathy, trying to understand one another and be understood and guaranteeing a proper working environment. [2]

Ethics is different from one culture to another (including viewpoint and religion). What is considered acceptable behavior in one culture might not be ethical or legal in another culture. Legal behavior is a conduct remaining the laws in power in a specific jurisdiction (typically a national or regional terrain where the behavior fundamentally happens). Ethical behavior is a behavior respecting the ethical rules shared by a specific community [2].

In our combined societies, where laws are prepared to protect the common good and the flat operation of the communities, what is illegal is commonly considered as unethical [2]. On the other hand, the opposite is not necessarily true, where some things may be legal but measured by many to be unethical.

With the new advancement in technology, Ethics also needs to take into justification what can probably be done technically or not, since some behavior depend upon technological improvement. It is therefore helpful to understand the technical setting before addressing the connected ethical issues. Ethics evolve with technology and in particular, since the advancement and usage of ICTs, new ethics issues have raised up. This is noticeable with many issues relating to social media which leads to dishonest (considered unethical) acts. [2]

5. Islam

The basic message of Islam is that God (Allah) is the only creator and Mohammad is his prophet and Messenger and servant. Islam is regarded as "a way of life" because it goes beyond rituals; it includes ethical conduct, belief, and worship. The corpus of Islamic teachings and laws is called Shari'ah, which provides the ethical foundation of conduct for either the individual or community [1].

The foundation of Shari'ah depend on primary and secondary sources of knowledge; The Quran, or can say the holy book of Islam; the Sunnah and the Seerah (Biography), or the way and biography of the Messenger; and the Usul-al-Fiqh or the Fiqh Science, which it is the Islamic legal sciences. Scholars use these sources to generate a ruling on a given issue or dilemma to decide the right action [1].

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The Quran

The Quran, the holy book of Islam, is God's own words revealed to the Prophet Muhammad 1,400 years ago in the Arab Peninsula (Middle East). The Quran is complete in its content and preserved for all times. The verse from the Quran supports this claim, which says,

الْيَوْمَ أَكْمَلْتُ لَكُمْ دِينَكُمْ وَأَتْمَمْتُ عَلَيْكُمْ نِعْمَتِي وَرَضِيتُ لَكُمُ الْإِسْلَامَ دِينًا

This day have I perfected your religion for you, completed My favour upon you, and have chosen for you Islam as your religion.

Quran 5:3

The SunnahandtheSeerah

The Sunnah is the traditions (Ahadeeth) of the Prophet, which includes his deeds, sayings, tacit agreement, or description of his physical appearance. These traditions talk about on the teachings of the Quran. Muhammad's companions recorded his traditions and they are in the thousands. The companions have also recorded his life history (Seerah), which provides a base for virtue ethics [1].

The Usul-Al-Fiqh (Fiqh Science)

The word Fiqh in Arabic means understanding and Usul means science. The Fiqh science aims at understanding and abstracting the soul of the operating principles of the Quran and the Sunnah

The Fiqh science provides a condensed set of principles or legal maxims called Qawa'id al-Fiqh. The knowledge of these abstracted principles allows scholars and people to arrive at ethical ways. This science also relies on secondary sources such as analogical reasoning (Qiyas). And the consensus of scholars (Ijma).With this mixture of sources, Muslim scholars have access to a method for meeting the challenges of different periods such as abortion, euthanasia, intellectual property, and software piracy [1].

Looking at the information Islamicaly.

Muslim scholar such Sardar had emphasized that the nature of information and it is objective would be very much dependent on the social sense upon which such information is generated [3].

6. The Ideologies of Information Security in the Islamic Perspective

Information is viewed in Islam as very significant and valuable assets to gain knowledge and to achieve a successful Islamic society. And this is accelerating with the use of ICT. In order for individual to achieve this entire goal Islam has paid specific attention to safe and accurate process of distribution of information. Other than

a religion of knowledge, Islam is also a religion of mission and spread [3].

كُنْتُمْ خَيْرَ أُمَّةٍ أُخْرِجَتْ لِلنَّاسِ تَأْمُرُونَ بِالْمَعْرُوفِ وَتَنْهَوْنَ عَنِ الْمُنْكَرِ وَتُؤْمِنُونَ بِاللَّهِ ۗ وَلَوْ آمَنَ أَهْلُ الْكِتَابِ لَكَانَ خَيْرًا لَهُمْ ۚ مِنْهُمُ الْمُؤْمِنُونَ وَأَكْثَرُهُمُ الْفَاسِقُونَ

Ye are the best community that hath been raised up for mankind. Ye enjoin right conduct and forbid indecency; and ye believe in Allah. And if the People of the Scripture had believed it had been better for them. Some of them are believers; but most of them are evil-livers.

Quran 5:110

Islam is very concerned with an effective communications. The story of Prophet Moses and Pharaoh, Moses requested God to be released of any impediment from his speech in order to enable him convey the message to Pharaoh and his people. It reveals that only when a communication is free from any obstacles, the information will be safely conveyed and understood and thus directed to the truth.

.يَا أَيُّهَا الَّذِينَ آمَنُوا اتَّقُوا اللَّهَ وَقُولُوا قَوْلًا سَدِيدًا

O you who believe! Fear Allah and speak a word right.

Quran 33:73

The Prophet Muhammad pbuh had also placed great emphasis on an effective communication. And this has been reflected in many hadith reported about him choosing always. The right and courteous words in conveying his message while observing the wisdom and beautiful preaching. The Prophet had been reported as saying that a Muslim should always mind his words and should only speak of good things, otherwise silence is better.

7. The Practice of Information Security Principles In

Islamic Tradition and Its Legal System

It consists of:

A. The Collection of Information: Honesty of the Sources:

It is an established Islamic theory that information which is crucial in social and religious life must be accurately sourced from authentic sources. Islam does not prohibit us from getting knowledge because knowledge is considered a missing virtue [3].
Prophet (S, A, W), his companions and earlier Muslims had practical firm methodological advance in the gathering of information.

The first two major occasions in Islamic history, the gathering and assemblage of the Qur'an and the classification of the Prophetic traditions (Hadith), where collection of information was done in a highest level of care and concern[3].

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B. The Processing of The Information: Verification and Authentication

Besides contend on Gathering and collecting information from honest and honorable sources, Islam is likewise concerned with second phase activities about the processing of information. This is why because before any information to be established and accepted, utilized, spread and acted upon, certain processing actions must be commenced. This includes filtering the information, confirmation of its authenticity, ensuring its correctness and also assessing its implication [3].

The following example shows that Qur'an concerning about gathering information and verify it.

Prophet Suleiman reported to have prepared efforts to verify the intelligence information brought to him by (hud-hud),it is bird which is used during prophet Suleiman in collecting information, regarding the activities of people of Saba'.

قال سننظر أصدقت أم كنت من الكاذبين

[Solomon] said, "We will see whether you were truthful or were of the liars.

Quran 27:27

A. Evidentiary Rules: Integrity, Availability and Non Denial Measures.

The necessity of confirmation and authentication of information is definitely practical on the powdered of rules of Islamic law of proof, mainly in relative with documented proof. The Qur'an Show that is important to get evidence or proof [3].

يا أيها الذين آمنوا إذا تداينتم بدين إلى أجل مسمى فاكتبوه
وليكتب بينكم كاتب بالعدل ولا يأب كاتب أن يكتب كما علمه الله
فليكتب وليملل الذي عليه الحق وليتق الله ربه ولا يبخس منه
شيئا فإن كان الذي عليه الحق سفيها أو ضعيفا أو لا يستطيع أن
يمل هو فليملل وليه بالعدل واستشهدوا شهيدين من رجالكم فإن
لم يكونا رجلين فرجل وامرأتان ممن ترضون من الشهداء أن
تضل إحداهما فتذكر إحداهما الأخرى ولا يأب الشهداء إذا ما
دعوا ولا تسأموا أن تكتبوه صغيرا أو كبيرا إلى أجله ذلكم أقسط
عند الله وأقوم للشهادة وأدنى ألا ترتابوا إلا أن تكون تجارة
حاضرة تديرونها بينكم فليس عليكم جناح ألا تكتبوها وأشهدوا
إذا تبايعتم ولا يضار كاتب ولا شهيد وإن تفعلوا فإنه فسوق بكم
واتقوا الله ويعلمكم الله والله بكل شيء عليم

O you who have believed, when you contract a debt for a specified term, write it down. And let a scribe write [it] between you in justice. Let no scribe refuse to write as Allah has taught him. So let him write and let the one who has the obligation dictate. And let him fear Allah , his Lord, and not leave anything out of it. But if the one who has the obligation is of limited understanding or weak or unable to dictate him, then let his guardian dictate in justice. And bring to witness two witnesses from among your men. And if there are not two men [available], then a man and two women from those whom you accept as witnesses - so that if one of the women errs, then the other can remind her. And let not the witnesses refuse when they are called upon. And do not be [too] weary to write it, whether it is small or large, for its [specified] term. That is more just in the sight of Allah and stronger as evidence and more likely to prevent doubt between you, except when it is an immediate transaction which you conduct among yourselves. For [then] there is no blame upon you if you do not write it. And take witnesses when you conclude a contract. Let no scribe be harmed or any witness. For if you do so, indeed, it is [grave] disobedience in you. And fear Allah . And Allah teaches you. And Allah Knows of all things.

Quran 2:282

Hadith

Also support the significance of documentary evidence. It was reported that the Prophet pbuh had written a variety of documents, which were about as evidential medium, such as a document drawn up involving him and the Quraish on the Hudaibiyah agreement for the reason of future reference. In recent terms of information security, 'repudiation' is mainly one of the information risks that need to be judgmentally careful, when information is deprived of its value or is repudiated-such information cannot likely be Trusted on [3].

It can be more incidentals that it is an essential philosophy of Islam that one must make sure that the information he seeks to rely upon should be securely sustain, recorded and ended available for future references, therefore a person can avoid denial risk. This is doubtfully an application of the principle of availability of information as one pillar of CIA main beliefs of information security.

B. The Distribution of Information: Confidentiality Rules

Another significant phase of the use of information is the distribution process. Distribution of information is considered as a decent thing because Muslims are invented to share knowledge and information in array to profit the society. On the other hand keeping knowledge to oneself and refusing to share with those who want it is measured a sinful [3].

The Prophet (SAW) was reported to have said that 'whoever was asked about something he knows, but he refused to disclose it, he shall be tied in the hereafter with ties from the hellfire (A hadlth narrated by, among others, Abu Dawud, al-Turmudhi, IbnMajah and Ahmad).

From Quran

وإذا جاءهم أمر من الأمن أو الخوف أذاعوا به ولو ردوه إلى
الرسول وإلى أولي الأمر منهم لعلمه الذين يستنبطونه منهم
ولولا فضل الله عليكم ورحمته لاتبعتم الشيطان إلا قليلا

And when there comes to them information about [public] security or fear, they spread it around. But if they had referred it back to the Messenger

or to those of authority among them, and then the ones who [can] draw correct conclusions from it would have known about it. And if not for the favour of Allah upon you and His mercy, you would have followed Satan, except for a few. Confidentiality is regarded as a trust (Amana) in Islam.

Quran 4:83

E. Liabilities over Intrusion of Information Security in

Islamic Law

Law is a social tool aimed at determining and reshaping social deeds which is enforceable and prepared by sanctions and punishment. Islamic law, being a complete legal system, seeks to repair the evils and enjoin the order in society in all aspects, including those dealing with protecting goods and security [3].

Recommendation regarding the usage of computer (technology) from Islam. Islam reinforces the sanctification of one's heart and mind to make it ready for any practices. One has to submit himself or herself to the Allah (SWT) completely. Islamic ethical values should be practiced in family life thus a child can grow up with Islam from his early life.

Government can set up computer crime law based on Islam which addresses the individual before the crime is committed and therefore is more of prevention than a cure.

Tracking software can be installed to monitor and to control computer users" daily activities with Computer resources.

High levels of awareness of information security and cybercrime issues amongst users at home, in government and educational institutions, in the private sector, and amongst legal officers;

Effective regional mechanisms for detection and preventing cybercrime and improving protection against, detection of, and responses to, cybercrime; Secure information systems, networks and transactions in the public and private sectors [2].

8. Piracy

Piracy, while having always been an issue, has garnered even more attention and anxiety with the advent of the digital age. Before digital media had become prominent, piracy was limited in that most people did not benefit from piracy merely because it was not worth it. The danger accompanied with piracy was great when associated to the financial gain. Also, pirating goods was challenging and required a high level of technical skill and knowledge most of the time. These factors joined with the generally substandard quality of pirated material effectively kept piracy from majorly affecting copyright holders. Once media began to digitize, many of these limiting factors quickly disappeared. For example, due to the natural type

of digital media, an identical duplicated quality can be manufactured easily and very little materials, technical knowledge and cost. This development has sparked an enormous increase in piracy and as a result developers and distributors of various types of media are gradually focusing on fighting piracy and the loss of potential returns that it represents.

9. Generic Network Attacking Techniques

The computer users on the network (or internet) are planning to share/exchange their data without any intervention by unauthorized (internal or external) player. When a 'Sender' transfers data to a 'Destination' on a network, there are big possibilities by unauthorized users (hacker or cracker) to intercept or improperly play with the data. [6]

A range of attacking techniques exists but the some basic methods are given below:

1. Interruption

Interruption is a technique in which Sender sends the data to Recipient but data is not reaching to recipient due to an attack in between sender and recipient. It is an attempt to make a computer resource unavailable to its intended users. It may be an effort of a person or people to prevent an Internet site or service from functioning efficiently or at all, temporarily or indefinitely. [6]

{ إِلاَّ ٱلَّذِينَ ءَامَنُواْ وَعَمِلُواْ ٱلصَّٰلِحَٰتِ لَهُمْ أَجْرٌ غَيْرُ مَمْنُونٍ }

Except those who believe and perform righteous deeds: theirs will be an unfailing reward, one that is unending, undiminished and not given to them in expectance of anything in return.
[QURAN 84:25]

2. Interception

It is a technique in which Sender sends data, and Recipient on the other-end receives it successfully, but there is a 3rd person (intruder or cracker) in between, also getting (i.e. copying, listening or watching) the same information, this is called the interception of data. [6]

3. Modification

The sender "A" is sending a data-file to Destination "B", but there is a 3rd person (may be a person or a software) in between "C", making changes in data-file and then sending it to Destination "B".

It involves the deletion, insertion, or alteration of information in an unauthorized manner. Website defacements are a common form of modification attacks. [6]

4. Fabrication

The sender "A" sent no data to the Target "B" but a 3rd party "C" in between, sends a self-created message to Target B and showing himself as if he was actual Sender

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A. As a result recipient at Target B starts actions (as directed in the message) on this fake message, considering it as a message from Sender 'A'. [6]

قَالَ لَهُمْ مُّوسَىٰ وَيْلَكُمْ لاَ تَفْتَرُواْ عَلَى ٱللَّهِ كَذِباً فَيُسْحِتَكُم بِعَذَابٍ وَقَدْ خَابَ مَنِ ٱفْتَرَىٰ

> Moses said to them — and there were 72 of them, each with a rope and a staff in his hand — 'Woe to you!, meaning, may God make you liable to woe. Do not invent a lie against God, by ascribing partners to Him, lest He annihilate you (read fa-yushitakum or fa-yashatakum) by some chastisement, from Him. For verily he who invents lies, against God, fails', [he] is the loser.
> [QURAN20:61]

10. Conclusion

As many different services go online, the need for security becomes even more essential. It might be disastrous whenever vital and important data is lost, specifically when it has to do with national security. Furthermore, exploitation of the Internet concerning personal relationship is quiet frightening as well. Therefore, more needs to be done by way of building awareness of the advantages and disadvantages of using internet; and putting in place some guiding principles and security measures to defend the Internet from misuse.

The development of technology and the creating of media can have good and bad effect on the society, the good effects are people can act together and work with no trouble by using technology. In fact, the teachings of Islam can be conveying to anybody without margin. The bad effects are the society is bare to many illegal and morally wrong activities such as the commission of computer crimes (information security breach or penetration), degradation of moral value, social crises, obliteration of marriage institution and insult on Islam.

Online networking proof is irrefutably a basic, new wilderness of government examinations and criminal incidents. Online networking has quickly ended up so pervasive that while clients are making distribution centers of information consistently keeping in mind social networking organizations take off new correspondence peculiarities, courts, government orgs, specialists and the online networking organizations themselves are attempting to see how this data fits into existing lawful standards of established securities, the SCA and guidelines of confirmation. In spite of this instability, one thing is clear –the legislature has a profound and to a great extent uneven set of devices for searching out and getting social networking proof that plays a regularly expanding basic part in their examinations and prosecution.

References

[1] Abdallah, S. (2008). Information Ethics from an Islamic Perspective I, 2–4.
[2] Aristote. (2008). Sur la justice. Ethique à Nicomaque. Translation by R. Bodéüs. Paris, France: Editions Flammarion.
[3] Bosack, Sean O'D. Brenner, Laura A. 2014. Social Media Evidence: Ethical and Practical Considerations for Collecting and Using Social Media Evidence in Litigation.
[4] Greene, Sari. 2014. Security Program and Policies: Governance and Risk Management.
[5] Kadar, A., & Masum, M. (2013). Ethical Issues in Computer use : A Study from Islamic Perspective. Global Journal of Computer Science and Technology Inte0rdisciplinary, 13(2). Retrieved from https://globaljournals.org/GJCST_Volume13/2-Ethical-Issues-in-Computer.pdf
[6] Muhammad Ghauri, 14 August 2011 [13 رمضان1432]. INTRUDERS – EXPLOITERS (Hackers/Crackers). Retrieved from http://www.itandquran.com
[7] Murphy, Justin. 2014. Social Media Evidence in Criminal Proceedings: An Uncertain Frontier
[8] Saad, Suhana. Ali, Nor Shahizan. Salman, Ali. (2013). Dealing with Ethical Issues among Internet Users: Do We Need Legal Enforcement?
[9] Zulhuda, S. (2010). Information security in the Islamic perspective: The principles and practices. Proceeding of the 3rd International Conference on Information and Communication Technology for the Moslem World (ICT4M) 2010, H–33–H–39. doi:10.1109/ICT4M.2010.5971936