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RELIGION AS APPARATUS OF ETHICAL SIMILARITY: A CATALYST TOWARD THE FRAMEWORK OF ETHICAL BEHAVIORS (FEB) IN TECHNICAL ENVIRONMENT

Issam Kouatli

ABSTRACT

While technical environment starts from western culture which is mainly based on Christianity, the associated ethical concern of the operation of technology can be varied depending on the sociotechnical environment and/or organizational culture. Ethical standards – irrespective of religions – can be used to govern the appropriate behaviors of employees in technical environment. Religions, on the other hand can also act as an apparatus of good ethical motivation that can guide individuals in society/environment. Different religions might use different "apparatus(s)" to define the "good" code of ethics. This chapter shows similarities in the ethical teaching dictated by different holy books (mainly Islam, Judaism, and Christianity). The reason is to generalize that religion, as an apparatus of ethics, can be

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a factor toward ethical behavior supporting the man-made code of ethics in organizations which can also lead to support the definition of the proposed framework ethical behaviors.

Comparison between verses from holy books shows similarities in ethical dimension between religions (mainly Islam and Christianity). After showing the similarities, this chapter proposes a framework of ethical behaviors (FEB) to measure employees' ethical standards in specific organization where technical environment like cloud computing was used as an example in this chapter.

Verses from both holy books (Quran and Bible–inclusive of the old testament) shows similarities in ethical standards. This similarity considered as a component toward the proposed framework for ethical behaviors in organizations where religion can be an important factor in multi-national, multi-cultural type of organizations. The proposed FEB can be used to identify possible environmental factors acting as moderators while religion and family values acting as mediators toward behaving ethically within technical environment.

The proposed framework can be used as a guide to identify ethical versus unethical employees where a mechanism to measure is proposed. Religious standard concluded out of the similarity section was used as a component of this framework.

The added value of utilizing good religious-based ethical standards is that employees/IT professionals will have an internal drive (on the top of corporate ethical standards) toward ethical behavior in such environment.

Keywords: Information ethics; business ethics; religious ethics; framework of ethical behavior

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INTRODUCTION

Religions in general, motivates ethical behavior at all times regulating the all aspects of the society as well as the legal and ethical issues and hence it becomes more than just spiritual religion but rather a guidance of how believers must behave in their societies. Muslims obliged to follow instructions and rules as dictated by Quran or Hadiths where many of these verses are related to legal and ethical behavior that Muslims should adopt. Some

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of these rules and instructions are also apparent through the relevant parts of the Bible. The Bible is composed of two main parts, the Old Testament part (44 books) describing mainly Moses teaching in Jewish religion and the New Testament part (22 books) describing Jesus teaching in Christianity. As the Bible is organized in a form of books, five of these books are ascribed to Prophet Moses in the Old Testament where most of the laws (and ethics) governed by the religion was described by these books and where the Ten Commandments were revealed by Prophet Moses. Hence the ethical similarity study in this chapter between Quran and the Bible, implicitly compare the verses from Quran with both other religions, the Judaism and Christianity. The Ten Commandments is a very clear instruction set where equivalent verses can be found in Quran (the holy book of Islam). Such comparison is not new and many websites (see relevant example of websites in the references section) discusses such resemblance. Such similarities are actually expected from Islamic point of view where Muslims believes in God (called Allah in Arabic language) as exactly the same God (called "Yahweh" in Hebrew language) in Jewish religion. However, "Commandments" in Quran, unlike in the five books of prophet Moses, are not listed in one specific part but rather scattered throughout the holy book of Islam representing the "code of ethics" within Islamic religion.

Few researchers already highlighted the use of Islamic code in technical environment that can add value on the top of code of ethics. For example, Al-A'ali (2008) studied the ethical behavior of Muslim IT professionals in an attempt to stop many unethical practices such as software piracy, software intellectual property violations, and general software development. This has been achieved via referring to some relevant verses of the holy Quran and Hadiths of Prophet Mohammed. The study demonstrates that teaching computer ethics in general and computer ethics from an Islamic point of view, in particular, clearly contributes to ethical behavior of Muslim IT professionals with regard to software development issues. A similar study also done by Abdallah (2010) where the governance system described by Islamic "Sharia's" laws and ethics highlighting the process of resolving ethical dilemmas as applied in the field of information ethics. The study shows that the system respects both collective and individual's perspectives and can be conceived as being a synthesis among ontological, consequentialist, and virtue ethics theories. Also, Masum, Ullah, and Azad (2011), raises the issues for the need of qualified and educated IT beneficiaries professionally and ethically and in specific in Muslim world, explored the need to adopt an Islamic ethical values in the IT-related works.

As new emerging technology appears, ethical dilemma also appears as the new situation causes a conflict in decision making regarding ethical behavior. For example, assume a speech monitoring administrator for a Facebook

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noticed that a user is publishing a racist comment. According to the Facebook "community standards" (https://www.facebook.com/communitystandards#hate-speech) policy, such comments must be deleted. By doing so, the IT professional would be denying customers'/users' the "freedom of speech" (which is also relatively unethical). The objective of such scenario is to illustrate that maintaining information ethical behavior in technical environment is a challenge that need to be resolved on a continuous basis. This principle has been proposed by Floridi (1999) where Information Ethics viewed as being dynamically evolved situations and where following ethical rules might not be enough but rather a form of decision-making and problem-solving approach which might include analogical reasoning. Also, in an attempt to construct a generic information logic (IL) for all agents (artificial and synthetic), Floridi (2006) also argued about the difference between the IL as opposed to epistemic logic (EL) and *doxastic logic* (*DL*) where the objective was to provide justification for a nondoxastic foundation of knowledge, and for a nonpsychologistic and nonmentalistic approach to epistemology. Capurro (2006) analyzes some challenges of digital technology, particularly with regard to the moral status of digital agents and argues that information ethics does not only deal with ethical questions relating to the *infosphere*, but also argued that a reductionist view of the human body as digital data overlooks the limits of digital ontology and gives up one basis for ethical orientation.

This chapter tackles the ethical behavior in technical environment such as cloud computing service provider environment, where a need to measure and maintain the ethical behavior of their IT professionals and employees. Ethical behavior inter-related security is the main factors toward gaining the clients (other businesses) trust in handling the applications and data management. Hence, it is a case of socio-ethical study that needs to be done by the cloud computing management on regular basis. Abbas, Michael K., and Michael M. G. (2014) proposed a similar situation in a case study of location-based services as part of the Internet Of Things (IOT) to demonstrate the complexity in their effects on society in terms of control and trust which can lead to the development of a socio-ethical conceptual framework that can be applied to minimize the unintended negative consequences of advanced technologies. Management in such environment also studied by Liu and Abdalla (2013) by differentiating between the knowledge management effectiveness as opposed to performance where evaluation was based on measuring knowledge management behavior through the three stages of environmental analysis, knowledge management activity, and implementation. The statistical results showed that the environmental analysis was most significant factor. De Bruin and Floridi (2016) argues that cloud clients as well as service

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providers have mutual informational (epistemic) obligations toward protecting consumer privacy, service reliability, and data. The chapter also argues that more stringent regulations must be followed by businesses using the cloud services. As an attempt to achieve the privacy and autonomy criteria, Stark and Tierney (2014) proposes an encrypted cloud storage application termed as "Lockbox" where the objective was to maintain privacy and usability of the cloud. From the point of view of technical management of cloud computing service environment where security is also dependent on ethical behavior of IT professionals, Kouatli (2014) studied unethical behaviors of IT professionals and its impact to the management of cloud computing environment whereas Kouatli (2016) describes 10 strategic steps for managing cloud computing service environment achieving security as an objective by maintaining ethical behavior in cloud computing service environment. Since cloud computing services is becoming a platform for "Big Data," Mittelstadt and Floridi (2015) looked into the understanding of the ethical implications of Big Data that lags behind where they analyze academic literature concerning the ethical implications of Big Data, providing a watershed for future ethical investigations and regulations with emphasis of data in biomedical industry. Five main areas of concern were identified: (1) informed consent, (2) privacy (including anonymization and data protection), (3) ownership, (4) epistemology and objectivity, and (5) "Big Data Divides" created between those who have or lack the necessary resources to analyze increasingly large datasets.

From a user point of view, Osipovs and Borisov (2012) studied the user behavioral modeling from different angle of neural network, agent-based and Bayesian network approaches. Tartoussieh (2011) explored the usage of new concept of social media to revive strong Islamic practices in an effort to develop Islamic inflected models of citizenship. Stückelberger (2008) explored the chances and challenges that are related to a newly formed concept of Globalethics.net (https://www.globalethics.org/) where the challenges discussed were the relativism, pragmatism, syncretism, and opportunism. Shields (2008) studied how religions formulate ethical responses from Information and Communications Technology (ICT) where he examined how ethics and religion can come together in Catholic teaching, discuss certain problems arising from that approach, and conclude with suggestions for a future religious ethics of ICT. Asadullah, Yerima, and Aliyu (2014) use evidence from the Holy Quran and Hadith of Prophet Mohammad (SAW) to examine the concept of ethics in different perspectives of Islamic, western, and ICT.

This chapter identifies similar verses from Quran and the Bible (mainly from the Old Testament part of the Bible), in an attempt to generalize religion

as a factor toward generic framework for ethical behavior where religion can be viewed as apparatus of ethics irrespective of the theological structure of any religion. Islamic religion generated rules to guide societies on ethical and legal behavior with obvious consequences in case of violation, representing the "code of ethics" from Islamic perspective. Hence, in a similar way of the Ten Commandments in Christianity, an implicit "code of ethics" also exists in Islam and in most theological religions. Irrespective of the religion, code of ethics must exist in technical environment such as cloud computing where rules and regulations must be apparent and obvious. Negligence of code of ethics or bad environmental factors might trigger the possible unethical behavior. Religions as well as the "Family values" act as mediators toward the final conclusion of ethical behavior. "Code of ethics" and "Digital citizenship" (http://www.digitalcitizenship.net/) can be a good start toward understanding the ethical issues when using IT systems. However, more advanced situations need to be discussed by the management and IT professional whenever new ethical dilemma emerges.

ETYMOLOGY AND EPISTEMOLOGY OF ETHICS IN RELATION TO TECHNICAL ENVIRONMENT

Before reviewing different societies and religions' definition of ethical behaviors, it would be appropriate to understand the origin of ethics and how it is viewed and understood by different environments. Although ethics and morality should be used in different contexts where ethics related to theoretical concepts of "good and bad," and morality is usually refer to the real-world belief and practices of "right and wrong"; however, in many literature, they are used interchangeably to describe the distinction of right and wrong in different areas of the environment. Ethics stems from the Greek word of "ethos" meaning the habit, character, or disposition, and in Middle English it was termed as ethik as the "moral study" which it was derived from Aristotle's definition (http://www.etymonline.com/index.php?term=ethics). Basically, it is the study of principles that can be developed to achieve the definitions of right and wrong behavior which, in other terms, can be viewed as acceptable morality conducted by individuals in a given society. The main objective of this chapter is to try to define this very principle in technical environment where dilemma may exist in certain situation and the definition of "right" and "wrong" can be ambiguous in some cases. For example, "shoulder surfing" when someone typing his/her password is an unethical act. Downloading pirated copies of

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software and music from the internet is another example of unethical behavior. Amazingly enough these two examples can be viewed by some individuals that it is accepted and not to be regarded as unethical behavior (see Kouatli & Balozian, 2011). This represents the heart of the problem where ethics can be influenced by the culture and the society – the individual came from. This is emphasized in large corporates and enterprises (specifically in IT and technical environment) where multi-cultural "society" within the organization is inevitable which would result in the definition of ethics within organization represented in "code of ethics conduct" that must be respected in the organization. To achieve this, it would be empirical to understand the methodology of gathering the knowledge of what is ethically acceptable or not. Ethics epistemology would be the science of finding the reason of why any specific scenario is "right" or "wrong." The intuitive nature of human beings provides the innate sense-ability of physical and emotional behaviors which leads to our sense of fairness. This would be the bases of epistemological origin to conclude "a" "code of ethics" we believe in. To get this knowledge accepted, then questions and answers to the individuals and groups in the society (environment) would clarify and conclude of what is accepted as ethical behavior in that society. Although intuitionistic of moral/ethical knowledge is unlikely to hugely deviate among different societies; however, the concluded code of ethics derived from specific society might slightly deviates from one another. For example, one society (or an organization or actually governments) may agree that using too many factories emitting pollutions in specific part of the world is unethical. Other societies may not consider such scenario as an ethical/unethical issue at all where their understanding of ethics is the welfare of humans as priority and hence profitable production is the priority irrespective of any kind of pollution causing to the environment. Another example would be the concept of "cloud computing" where financial impact is the main drive to most organizations, where large data centers built by cloud computing services organizations can have a scale of economies when using a cheaper option of electricity generation (and associated required cooling of data centers) leading to more environment friendly. However, as stated by Venters and Whitley (2012, p. 181) and according to Greenpeace report (2010) criticizing such cloud computing data centers where costs of energy consumption was hidden. An example of Apple iCloud data center was mentioned by Venters and Whitley (2012) is estimated to require the equivalent power to 80,000 U.S. homes. Would this fact be a justification by some organizations to adopt (or not) cloud services? Such decision can be fuzzy in nature and interrelated with the ethical interpretation as opposed to financial impact cloud services may provide. If a "Green solution" utilized effectively but might be more

costly to set-up/maintain, would it then be acceptable to a specific society (or organizational environment)? The right and wrong can be interpreted differently by different individuals (or societies). Some of them consider humans is the main objective regardless of the environment, animals, etc. Others may view ethics not only necessary to maintain the care and comfortable of human beings alone, but also to look after the forests, animals, and reduce the harm to the environment as a whole inclusive of human beings.

RELIGIONS AS APPARATUS OF SIMILAR ETHICS

Based on previous discussion, intuitively driven morality clearly defined by human nature to interpret behaviors as either good or bad, for example, irrespective of the type of religion, killing another human being (or an animal) for no reason is obviously "bad/wrong" while providing food and shelter for needy neighbors is "good/right." This interpretation of "good" and "bad" is highly affected by the society the person lives under, and, hence, the definitions of right and wrong becomes fuzzy in nature which is dependent on the environment/society that may define a tailored definitions of right and wrong. Needless to say that since different persons have a different character in nature, then the pre-defined "good" and "bad" by the society can either be accepted or rejected by individuals. Religion can be the second factor that affects the individual's right or wrong decision of ethical judgment. The practical implementation of society-driven ethics that may also superseded by theologically driven ethics can be the main drive for an enhanced/mediated "information ethics" performance. Challenges in preserving information ethics has been tackled by few researchers. For example, Sims (1992) discussed the unethical behavior in organizations in general and highlights the importance of establishing ethical climate within an organization. Capurro (2010) discussed the ICT challenging issues like privacy, information load, digital divide, surveillance, and robotics are discussed from an intercultural perspective. As an attempt to develop a code of ethics for the information society, Capurro and Britz (2010) also differentiated between global code of ethics and a global discussion of ethical issues that takes particularly into consideration intercultural issues. Also, Udeani, Frühbauer, and Capurro (2013) discussed the use of Internet as an ethical challenge for religions where exploration of the use of ICT to enhance religious power, the use of ICT as religious network for believers and theological information ethics.

Religions, in general, Judaism, Christianity, and Islam in specific have elements of ethical codes. Unlike the man-developed epistemological code

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of ethics, these codes are holy in nature and dictated in the holy book(s). Religious individuals may respect and value this ethical structure more than the man-made ethical standards. The Ten Commandments mentioned in the Old Testament can be viewed as the biblical code of ethics representing suitable rules for the benefit of "citizens" living in a given society revealed to Moses by God. Muslims also have code of ethics which has been derived from the Quran and Hadith (Prophet Mohammad sayings in different aspects of life). Obviously, the relationship of morality under the divine umbrella to specify the moral and ethical "law" was (and still is –in large part of the world) the main strategy controlling good behavior in a specific society. Religions in such cases act as an apparatus of ethical code of conduct irrespective of the theological infrastructure or actual belief of any specific religion. The main concern of this chapter is to investigate the common denominators of religious ethics that can be used as part of the framework of ethical behaviors (FEB) in technical environment. Ethical dimension of religion in general can act as an enhancement mediator of the overall ethical behavior. Hence, in this chapter, only the similar ethical statement from different holy books is listed as evidence that religion can be an apparatus of ethics. The theological aspects of religions are not the objective of this chapter and considered out of scope and hence will not be discussed. However, since Muslims believe that they are worshiping the same GOD (called "ALLAH" in Arabic language) as the Jews and Christians and the fact that Muslims, on top of the Islamic holy book of Quran, also recognize the existence of the other two holy books (irrespective of which version of the holy book is acceptable to them) from Islamic theological perspective, then it would be viable to show ethical similarities in statements from Quran and the Bible (mainly verses depicted from the Old Testament). Definitely, this does not imply that religions are the same but the objective is to show that religions can be apparatus of similar ethical statements and hence religious ethics (irrespective of any specific religion) can be considered as a catalyst toward enhancing ethical behavior in technical organizations. Hence, religious ethics can add value to corporate's code of ethic and can assert the business code of ethics by guiding individuals to behave ethically at all times. This technique can be efficient only if the individual is a really practicing the appropriate religious "code of ethics" on top of the company's code of ethics.

Starting with the Ten Commandments, the equivalence of those can be deduced from Quran as it can be seen from Table 1. Obviously, all of the depicted items from Table 1 comes from the Judaism religion where these commandments were revealed by Moses. Most of the items in Table 2 are also coming from the same source of the Old Testament (Judaism), but

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Table 1. The Ten Commandments and its Equivalent in Quran.

Quran	Quranic Transliteration http://www.alim.org/library/quran/surah/english/5/TLT	Quranic Translation	The 10 Commandments in Short Form
وَإِلَـٰهُكُمْ إِلَـٰهٌ وَاحِدٌ لا إِلَـٰهَ إِلا هُوَ الرَّحْمَٰنُ الرَّحِيمُ البقرة 163	Wailahukum ilahun wahidun la ilaha illa huwa alrrahmanu alrraheemu ***Surah 2 Al-Baqara 163***	And your god is one God. There is no deity [worthy of worship] except Him, the Entirely Merciful, the Especially Merciful.	1-You shall have no other gods before Me.
لَيْس كَمِثْلِهِ شَيْءٌ وَهُوَ السَّمِيعُ الْبَصِيرُ سورة الشورى 11	…laysa kamithlihi shayon wahuwa alssameeAAu albaseeru ***Surah 42. Ash-Shura 11***	There is nothing like unto Him, and He is the Hearing, the Seeing.	2-Thou shall make no image of God.
وَلا تَجْعَلُوا اللَّهَ عُرْضَةً لِأَيْمَانِكُمْ أَنْ تَبَرُّوا وَتَتَّقُوا وَتُصْلِحُوا بَيْنَ النَّاسِ وَاللَّهُ سَمِيعٌ عَلِيمٌ البقرة 224	Wala tajAAaloo Allaha AAurdatan liaymanikum an tabarroo watattaqoo watuslihoo bayna alnnasi waAllahu sameeAAun Aaaleemun ***Surah 2. Al-Baqara 224***	And do not make [your oath by] Allah an excuse against being righteous and fearing Allah and making peace among people. And Allah is Hearing and Knowing.	3-You shall not take the name of the LORD your God in vain.
يَا أَيُّهَا الَّذِينَ آمَنُوا إِذَا نُودِيَ لِلصَّلَاةِ مِنْ يَوْمِ الْجُمُعَةِ فَاسْعَوْا إِلَىٰ ذِكْرِ اللَّهِ وَذَرُوا الْبَيْعَ ذَٰلِكُمْ خَيْرٌ لَكُمْ إِنْ كُنْتُمْ تَعْلَمُونَ سورة الجمعة 9	Ya ayyuha allatheena amanoo itha noodiya lilssalati min yawmi aljumuAAati faisAAaw ila thikri Allahi watharoo albayAAa thalikum khayrun lakum in kuntum taAAlamoona ***Surah 62. Al-Jamu'a 9***	O you, who have believed, when [the adhan] is called for the prayer on the day of Jumu'ah [Friday], then proceed to the remembrance of Allah and leave trade. That is better for you, if you only knew.	4-Remember the Sabbath day, to keep it holy.
وَقَضَىٰ رَبُّكَ أَلا تَعْبُدُوا إِلَّا إِيَّاهُ وَبِالْوَالِدَيْنِ إِحْسَانًا إِمَّا يَبْلُغَنَّ عِنْدَكَ الْكِبَرَ أَحَدُهُمَا أَوْ كِلَاهُمَا فَلا تَقُلْ لَهُمَا أُفٍّ وَلا تَنْهَرْهُمَا وَقُلْ لَهُمَا قَوْلا كَرِيمًا الاسراء 23	Waqada rabbuka alla taAAbudoo illa iyyahu wabialwalidayni ihsanan imma yablughanna AAindaka alkibara ahaduhuma aw kilahuma fala taqul lahuma offin wala tanharhuma waqul lahuma qawlan kareeman ***Surah 17. Al-Israa 23***	And your Lord has decreed that you not worship except Him, and to parents, good treatment. Whether one or both of them reach old age [while] with you, say not to them [so much as], "uff," and do not repel them but speak to them a noble word.	5-Honor your father and your mother.

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مَنْ قَتَلَ نَفْسًا بِغَيْرِ نَفْسٍ أَوْ فَسَادٍ فِي الْأَرْضِ فَكَأَنَّمَا قَتَلَالنَّاسَ جَمِيعًا وَمَنْ أَحْيَاهَا فَكَأَنَّمَا أَحْيَا النَّاسَ جَمِيعًا المائدة 32	man qatala nafsan bighayri nafsin aw fasadin fee alardi fakaannama qatala alnnasa jameeAAan. ***Surah 5.Al-Maida 32***	Whoever kills a soul unless for a soul or for corruption [done] in the land – it is as if he had slain mankind entirely ; And whoever saves one – it is as if he had saved mankind entirely.	6-You shall not murder.
وَلَا تَقْرَبُوا الزِّنَا إِنَّهُ كَانَ فَاحِشَةً وَسَاءَ سَبِيلًا الاسراء 32	Wala taqraboo alzzina innahu kana fahishatan wasaa sabeelan ***Surah 17. Al-Israa 32***	And do not approach unlawful sexual intercourse. Indeed, it is ever an immorality and is evil as a way.	7-You shall not commit adultery.
وَالسَّارِقُ وَالسَّارِقَةُ فَاقْطَعُوا أَيْدِيَهُمَا جَزَاءً بِمَا كَسَبَا نَكَالًا مِنَ اللَّهِ وَاللَّهُ عَزِيزٌ حَكِيمٌ سورة المائدة 38	Waalssariqu waalssariqatu faiqtaAAoo aydiyahuma jazaan bima kasaba nakalan mina Allahi waAllahu AAazeezun hakeemun ***Surah 5.Al-Maida 32***	[As for] the thief, the male and the female, amputate their hands in recompense for what they committed as a deterrent [punishment] from Allah. And Allah is Exalted in Might and Wise (38).	8-You shall not steal.
لَا تَكْتُمُوا الشَّهَادَةَ وَمَنْ يَكْتُمْهَا فَإِنَّهُ آثِمٌ قَلْبُهُ وَاللَّهُ بِمَا تَعْمَلُونَ عَلِيمٌ سورة البقرة 283	wala taktumoo alshshahadata waman yaktumha fainnahu athimun qalbuhu waAllahu bima taAAmaloona Aaaleemun ***Surah 2 Al-Baqara 283***	And do not conceal testimony, for whoever conceals it – his heart is indeed sinful, and Allah Knows of what you do.	9-You shall not bear false witness against your neighbor.
وَلَا تَمُدَّنَّ عَيْنَيْكَ إِلَىٰ مَا مَتَّعْنَا بِهِ أَزْوَاجًا مِنْهُمْ زَهْرَةَ الْحَيَاةِ الدُّنْيَا لِنَفْتِنَهُمْ فِيهِ وَرِزْقُ رَبِّكَ خَيْرٌ وَأَبْقَىٰ سورة طه 131	Wala tamuddanna AAaynayka ila ma mattaAAna bihi azwajan minhum zahrata alhayati alddunya linaftinahum feehi warizqu rabbika khayrun waabqa ***Surah 20 Ta-ha 131***	And do not extend your eyes toward that by which We have given enjoyment to [some] categories of them [its being but], the splendor of worldly life by which We test them. And the provision of your Lord is better and more enduring.	10-You shall not covet.

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Table 2. Other Similarities between Christianity and Islam—Evidence from Holy Books.

#	Islam (Quran)	Quranic Transliteration http://www.alim.org/library/quran/surah/english/5/TLT	Quranic Translation	Judeo-Christian
1	إِنَّ اللَّهَ يَأْمُرُكُمْ أَنْ تُؤَدُّوا الْأَمَانَاتِ إِلَىٰ أَهْلِهَا وَإِذَا حَكَمْتُمْ بَيْنَ النَّاسِ أَنْ تَحْكُمُوا بِالْعَدْلِ إِنَّ اللَّهَ نِعِمَّا يَعِظُكُمْ بِهِ إِنَّ اللَّهَ كَانَ سَمِيعًا بَصِيرًا ﴿٨٥﴾ سورة النساء الآية 58	Inna Allaha yamurukum an tuaddoo alamanati ila ahliha waitha hakamtum bayna alnnasi an tahkumoo bialAAadli inna Allaha niAAimma yaAAithukum bihi inna Allaha kana sameeAAan baseeran ***Surah 4. An-Nisaa 58***	Verily! Allah commands that you should render back the trusts to those to whom they are due; and that when you judge between men, you judge with justice. Verily, how excellent is the teaching which He (Allah) gives you! Truly, Allah is Ever All-Hearer, All-Seer.	Deuteronomy 24:15 "You shall give him his wages on his day before the sun sets, for he is poor and sets his heart on it; so that he will not cry against you to the LORD and it becomes a sin in you."
2	) قد أفلح من زكاها (9) وقد خاب من دساها (01) سورة الشمس 109	9 :Qad aflaha man zakkaha 10 :Waqad khaba man dassaha ***Surah 91. Ash-Shams 9-10***	He has succeeded who purifies it. And he has failed who instills it [with corruption].	Mark 8:36 For what does it profit a man to gain the whole world and forfeit his soul?
3	إِنَّ اللَّهَ يَأْمُرُ بِالْعَدْلِ وَالْإِحْسَانِ وَإِيتَاءِ ذِي الْقُرْبَىٰ وَيَنْهَىٰ عَنِ الْفَحْشَاءِ وَالْمُنْكَرِ وَالْبَغْيِ يَعِظُكُمْ لَعَلَّكُمْ تَذَكَّرُونَ سورة النحل—الاية 90	Inna Allaha yamuru bialAAadli waalihsani waeetai thee alqurba wayanha AAani alfahshai waalmunkari waalbaghyi yaAAithukum laAAallakum tathakkaroona ***Surah 16. An-Nahl 90***	Indeed, Allah orders justice and good conduct and giving to relatives and forbids immorality and bad conduct and oppression. He admonishes you that perhaps you will be reminded.	Jeremiah 17:11 "As a partridge that hatches eggs which it has not laid, So is he who makes a fortune, but unjustly. In the midst of his days it will forsake him, And in the end he will be a fool."
4	وَإِذَا قُلْتُمْ فَاعْدِلُوا وَلَوْ كَانَ ذَا قُرْبَىٰ وَبِعَهْدِ اللَّهِ أَوْفُوا ذَٰلِكُمْ وَصَّاكُمْ بِهِ لَعَلَّكُمْ تَذَكَّرُونَ ﴿٢٥١﴾ سورة الأنعام - الآية 152	....Idhā Qultum Fā`dilū Wa Law Kāna Dhā Qurbá Wa Bi`ahdi Allāhi ʻAwfū Dhālikum Waṣṣākum Bihi La`allakum Tadhakkarūna ***Surah 6. Al-An'am 152***	And when you speak, be just, though it be (against) a relative; and fulfill Allah's covenant. This He has enjoined you with so that you might remember.	Proverbs 16:8 Better is a little with righteousness than great income with injustice

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5	يادَاوُودُ إِنَّا جَعَلْنَاكَ خَلِيفَةً فِي الْأَرْضِ فَاحْكُمْ بَيْنَ النَّاسِ بِالْحَقِّ وَلَا تَتَّبِعِ الْهَوَىٰ فَيُضِلَّكَ عَنْ سَبِيلِ اللَّهِ إِنَّ الَّذِينَ يَضِلُّونَ عَنْ سَبِيلِ اللَّهِ لَهُمْ عَذَابٌ شَدِيدٌ بِمَا نَسُوا يَوْمَ الْحِسَابِ سورة ص - الآية 26	Yā Dāwūdu ‘Innā Ja`alnāka Khalīfatan Fī Al-’Arđi Fâĥkum Bayna An-Nāsi Bil-Ĥaqqi Wa Lā Tattabi`i Al-Hawá Fayuđillaka `An Sabīli Allāhi ‘Inna Al-Ladhīna Yađillūna `An Sabīli Allāhi Lahum `Adhābun Shadīdun Bimā Nasū Yawma Al-Ĥisābi ***Surah 38. Sad 26***	O Dawood! (David) We did indeed make thee a vicegerent on earth: so judge thou between men in Truth (and justice): nor follow thou the lusts (of thy heart), for they will mislead thee from the Path of Allah: for those who wander astray from the Path of Allah, is a Penalty Grievous, for that they forget the Day of Judgement.	Leviticus 19:35 “You shall do no wrong in judgment, in measurement of weight, or capacity.”
6	[ص: 902] ()يا أيها الذين آمنوا كونوا قوامين لله شهداء بالقسط ولا يجرمنكم شنآن قوم على ألا تعدلوا اعدلوا هو أقرب للتقوى واتقوا الله إن الله خبير بما تعملون . يَا أَيُّهَا الَّذِينَ آمَنُوا سورة المائدة—الآية 8	Ya ayyuha allatheena amanoo koonoo qawwameena lillahi shuhadaa bialqisti wala yajrimannakum shanaanu qawmin AAala alla taAAdiloo iAAdiloo huwa aqrabu liltaqwa waittaqoo Allaha inna Allaha khabeerun bima taAAmaloona ***Surah 5.Al-Maida 32***	O ye who believe! stand out firmly for Allah, as witnesses to fair dealing, and let not the hatred of others to you make you swerve to wrong and depart from justice. Be just: that is next to piety: and fear Allah. For Allah is well-acquainted with all that ye do.	Micah 6:8 He has told you, O man, what is good; and what does the Lord require of you but to do justice, and to love kindness, and to walk humbly with your God?
7	وقل اعملوا فسيرى الله عملكم ورسوله والمؤمنون وستردون إلى عالم الغيب والشهادة فينبئكم بما كنتم تعملون سورة التوبة (105)	Waquli iAAmaloo fasayara Allahu AAamalakum warasooluhu waalmuminoona wasaturaddoona ila AAalimi alghaybi waalshshahadati fayunabbiokum bima kuntum taAAmaloona ***Surah 9. At-Tauba 105***	“And say, do [as you will], for Allah will see your deeds, and [so will] His Messenger and the believers. And you will be returned to the knower of the unseen and the witnessed, and He will inform you of what you used to do” [9:105].	Psalm 41:12 As for me, you uphold me in my integrity. And You set me in Your presence forever

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Table 2. (*Continued*)

#	Islam (Quran)	Quranic Transliteration http://www.alim.org/library/quran/surah/english/5/TLT	Quranic Translation	Judeo-Christian
8	ولا تفسدوا في الارض بعد اصلاحها وادعوه خوفا وطمعا ان رحمت الله قريب من المحسنين سورة الأعراف (56)	Wala tufsidoo fee alardi baAAda islahiha wa**o**dAAoohu khawfan wataamaAAan inna rahmata Allahi qareebun mina almuhsineen**a** ***Surah 7. Al-A'raf 56***	(And cause not corruption upon the earth after its reformation. And invoke Him in fear and aspiration. Indeed, the mercy of Allah is near to the doers of good.) [7:56]	Ezekiel 22:12 "In you they have taken bribes to shed blood; you have taken interest and profits, and you have injured your neighbors for gain by oppression, and you have forgotten Me," declares the Lord GOD.
9	والذين هم لاماناتهم وعهدهم راعون سورة المؤمنون(8)	Wa**a**llatheena hum liamanatihim waAAahdihim raAAoon**a** ***Surah 23. Al-Muminun 8***	"And those who keep their trusts and promises" [Qur'an, 23:8]	Leviticus 19:11 "You shall not steal; you shall not deal falsely; you shall not lie to one another."

since Christians also believe in the Old Testament, then these tables can be viewed as showing the similarity between the law and ethical verses of Islam relative to the Judo-Christian religious law and ethical verses.

The trend of these commandments are same with the main differences is what dictates the situation in specific era. For example, when the Old Testament revealed, commandment 4 talks about Sabbath while in Quran talks about "Friday" prayer instead of "Saturday" (Sabbath). The discussion in this section is meant to show the similarities of ethical structure between theological religions, and, hence, religious ethics can be used toward defining the FEB. Full analysis of "Religious ethics" where many other factors may contribute to this analysis including the inter-cultural/inter-religion communications across countries and across history of such relation is beyond the scope of this chapter and an excellent paper describing Islam/Christianity relations can be found in Smith (2015). Similarities of religious ethics are not only obvious from the "Ten Commandments" but also through a number of verses related mainly to ethical behaviors from both holy books. Nine other verses mainly from Judaism (Old Testament) are also identified with a similar equivalence in Quran can be shown in Table 2.

FRAMEWORK OF ETHICAL BEHAVIOR IN TECHNICAL ENVIRONMENT

Ethical or Unethical behavior of any human being can always be triggered by a certain stimulus which would be resulted mainly from environment, religious belief or behavioral genetics mixed with family values. Hence, measuring human ethical/unethical behavior is not an easy task. Fig. 1 can show a framework schematic of ethical behavior where the two main categories shown in a form of sets. The main two sets are either ethical or unethical behaviors. These two sets are affected by the environmental factors in technical organizations. These factors can either be moderators, such as environmental organizational culture including fairness, team bonding, etc. The factors influencing the ethical/unethical behaviors can also be mediators, such as religious ethics (as discussed in previous section) or family values. Hence, FEB can be categorized into two different categories which are defined as either moderators or mediators to the prompt ethical behavior. Details of these categories are:

Category 1: Moderator (Environmental) Variables: The environment (represented by factors detailed below) is the main moderator that may trigger an unethical behavior if the environment not managed well (see Fig. 1).

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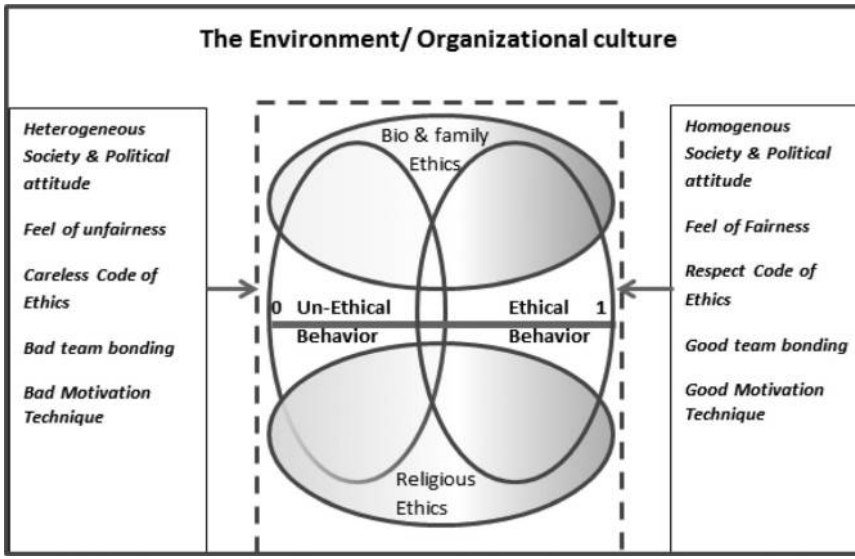

Fig. 1. FEB with the Main Influencing Categories.

A good plan for organizing this category effectively may reduce the impact of the other category that might lead to unethical behavior. The main environmental factors that might lead to unethical behaviors in this case would be:

(a) Homogeneous/heterogeneous society augmented with political attitude: Homogenous society with same political attitude will definitely lead to better team bonding and hence a better ethical environment. In a heterogeneous society where personnel comes from different cultures, affinity between team members might be reduced. Different part of the world and/or different religious background will also affect the level of this category. For example, in single cultured society where all personnel share the very same background, then this will definitely lead to a better team bonding with better ethical performance. However, in multi-national organizations/cultures, then the effect of this factor might lead to possible disharmony among staff members and hence higher risk of unethical behavior might exist if not managed well. In this case, the other good religion adoption with respected religious "code of ethics" may compensate the effect of heterogeneity. Similarly, in case the individual does not believe in any religion, then family values may also compensate for this heterogeneous

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environment. Obviously, different parts of the world might be more sensitive to this factor than others.

(b) Feel of fairness: One of the very important factors toward gaining individuals loyalty to the organization. Unfair treatment among employees/IT professionals might raise a feel of bitterness that might lead to unethical behavior. To maintain this issue, clear policy and the code of ethics must be established with detailed consequences of punishment in case of violation.

(c) Respect of the code of ethics: This is one of the utmost important factors where code of ethics can be used to compensate for low religious or possible low family ethical values. The organization must highlight the importance of the code of ethics through encouragement of understanding and implementing the "Digital citizenship" through ethical seminars where any ambiguity of dealing with some ethical dilemma should be clarified.

(d) Good team bonding: The environment must also encourage team bonding through social events and gatherings where openness of issues of concerns can be brought up and discussed in an informal manner and hence reducing any possible conflicts among team members.

(e) Good motivation technique: The manager in such environment must be aware of different personalities among team members. Design of a suitable motivation technique for each member would be necessary to achieve the best performance from that member inclusive of ethical behavior.

Category 2: Mediators Variables:

(a) Religious ethics: This factor can act an internal drive of ethical behavior and can be used to augment the code of ethics in maintaining an ethical environment. As discussed in previous section, ethical similarity in religions (Judeo-Christian and Islam) shows motivations toward adopting ethical behaviors at all time. This would be an added value toward maintaining ethical behavior in organizations. Carelessness by individuals of respecting the code of ethics can be mediated by this factor. It should be noted however, that the schematic in Fig. 1 shows the "Religion" factor as a set which can be evaluated between Zero (Low) and One (High) and obviously the definition of "Low" and "High" is fuzzy in nature and which can be judged differently by different societies. Basically, the "High" definition in this case would be the moderate religious character that respect his/her religious teaching as well as respecting other religions where as the "Low" definition can be interpreted as "no religion" or fanatic view of the religion prohibiting individual from performing well in a society.

(b) Bio and family ethics: Recent study states that not only the environmental factors dictates the behavior of a person, biological genetics might also be a factor as studied by MacKellar (2007; https://cbhd.org/content/ethics-and-genetics-human-behaviour). All researchers in this field of research, agree that biological ethics can never be measured independently without the measurement of "Family Values" that has the significance effect of this factor. For example, Turkheimer (2000) proposed that genotype is more systematic variability than the environmental factors due to methodology rather than substantive where his study does not show that genes are more fundamental than environment. Also, Barnes, Beaver, Connolly, and Schwartz (2016) showed in their study that the genetic factors are not significant factors toward human behavior but rather the social environmental factors would still be the main significant factor in most cases. Hence, basically it is the "Family Values" that make a difference toward motivating the ethical behavior, irrespective of the biological factors. The behavior of a human being can never be based or judged on their genes but rather by the good family values that can re-define the ethical good behavior out of the bad unethical one.

Assuming that each one of the above two categories can be measured with values between 0 and 1, then ethical behavior of any specific individual can be measured by calculating the average between all factors in both categories. This can be the simplest way of measuring ethical behavior. However, it might not be accurate or appropriate in some cases. More sophisticated technique(s) can be used to conduct measurement in more subjective way. Intelligent technique like "Fuzzy logic" (see Kouatli (2015) as an example of decision making in "fuzzy" environment) among other possible intelligent techniques may provide more appropriate solution in a form of decision-making process. However, discussion of such techniques and their effectiveness is beyond the scope of this chapter.

DIGITAL CITIZENSHIP AND RELIGIOUS ETHICS AS ENDORSEMENT OF INFORMATION ETHICS

Digital citizenship (http://www.digitalcitizenship.net/) is a relatively new concept that proposes to educate students about IT etiquettes and responsibilities in terms of public and personal use of IT systems which includes digital ethics when using systems. It is meant to start educating students from school level where they can grow with this concept to become ethically oriented

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users when they become adults. Even though different countries may term it with different names, digital citizenship is gaining popularity between communities as it prepares users of being responsible persons toward the use of information technologies and systems. According to (http://www.digitalcitizenship.net/), the concept is composed of nine elements, categorized in three categories termed as: responsibility, educate, and protect (REPs):

(a) Respect Category: Include the etiquette principle of using IT systems where the student should learn the law and code of ethics when using systems by respecting the rules and procedure as well as avoiding any criminal act by violating-related laws in IT environment. Obviously access to systems with appropriate password become a consequent of the etiquette by appropriately protecting their password and not sharing their own access with others.
(b) Educate Category: Includes literacy of using technology in general, quickly and effectively, which can be changed whenever new technology emerges. Obviously, this would require a media to communicate where this can vary from simple email to different types of digital and social media to learn from. E-commerce principles with rules of buying and selling legitimately and securely is also part of this category.
(c) Protect Category: Includes the rights and responsibilities of users should adopt in digital world should be discussed. Rights in this case are associated with responsibly of maintaining and using technology in an appropriate manner. Security becomes an important issue to protect information of concerns. Passwords and password management mentioned in category 1 can act as the start of protecting information.

This concept of "Digital Citizenship" is an excellent start for student whom will be the future users in digital age where other researcher's touches on the issues related to this concept. For example, Eldred (2013) explored the socio-ontological foundations of the reputation phenomenon in today's context of cyber-world. Eldred (2013) argued that the cyber-world is an extension of Turing machine but it is also a mechanism of defining "whoness" that have decisive impact on the reputation of cyber-world users. In his talk as invited speaker, Capurro (2014) differentiated between the physical citizen and cyber citizen by reviewing the historical aspects of citizenship where he concluded by proposing some sort of digital living rooms that can be an alternatives to commercial spaces we are becoming dependent on. Moraes and Andrade (2015) discusses citizenship in digital era and proposes the concept of "hybrid being" as convergence between the physical and digital entity of an individual's actions which is represented by the "digital citizenship."

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However, although the concept of "Digital Citizenship" is an important one, but users/students also, need to be aware about ethical dilemma that might emerge when using new technology. Such emergent technology might not even exist when student learns the concept of digital citizenship. For example, under Protect category, a good "citizen" must maintain the "Freedom of speech"; however, what actions should be taken if a specific racist comment spotted by a "citizen" managing such environment? A good citizen would be tempted to delete such comment; however, "Freedom of speech" would have been denied in this case which can also be viewed as "un-ethical." As part of their policy on "hate speeches" (see https://www.facebook.com/communitystandards#hate-speech) and encouragement of respectful behaviors, Facebook removes such statements whenever noticed or reported by the community. Digital citizen concept is a good start of preparing generations for dealing with new technical environment ethically all the time. However, it might not be enough to prepare IT professionals when new emergent technology appears in the market where special clarifications between ethical and legitimate boundaries must exist. For such environments, regular ethical seminars should be conducted to clarify and/or emphasize the rules, procedures, and regulations of conducting the IT profession ethically within the boundary of the law. Harris (2014), for example, highlighted the importance of ethical training in corporates regardless of the size of corporates; integrity of decision making should be maintained. Conceptual framework and training responsibility in a form of case study examples was also provided in his study.

Scenario of ethical dilemma may exist in an emergent new technology of cloud computing environment. Since cloud services offered to different clients whom might be competitors in a specific industry, then, would it be ethical that such service be done by the same IT professional? Sharing IT Professionals and sharing storage devices worries most of SME businesses and makes them reluctant to utilize cloud computing services. Businesses regard their information as highly sensitive and cannot take the risk of possible leak of information from one business data to their competitors. Also, sharing the very same storage devices to save data for both companies (competitors) also worries many clients causing them to hesitate when it comes to adopt cloud computing services in their organizations. From Service Providers' management point of view, it is not practical to assign an IT professional for each competitor in specific business sector. This is where religious ethics can play an important role toward maintaining secure and protected application and data for both competitors. Religion in this case (and/or family values), can provide an internal drive to the professional to

behave ethically at all times. See items 1, 3, and 6 in Table 2 that motivate believers to respect the trust and promises as well as forbidding immorality and bad conduct.

CONCLUSION

Studying information ethics in today's turbulent technical environment is not an easy task. Emergent technologies come with possible ethical dilemma and hence new theories generated exploring the human nature facing the new emergent trend of technology. This chapter investigates that the use of religion as a mediated factor toward enhancing the ethical behavior of individuals. Similarity study of some relevant verses from holy books the Bible (mainly from the Old Testament) and the Quran acts as an indicator of religious teaching representing a "religious code of ethics". This "religious ethics" can be used as a mediator towards enhancing individual's behavior working in a corporates like Cloud Computing providers environment and where good ethical behavior would be the source of internal security in such environment leading to customer (other businesses) trust.

The chapter further develops a FEB where all major environmental and corporate organizational factors that may lead to ethical (or unethical) behavior are considered. Psychological factors are considered out of the scope of this chapter and it was not discussed. These factors were categorized into two categories termed as the "Moderator category" composed of most valid organizational factors like fairness, motivations, and the homogenous/heterogeneous environment while "Mediator Category" was identified as either being the "religious ethics" or "family values" or both. Measurement of individual ethical behavior would then be possible by evaluating the moderators in conjunction with the mediator variables. The method of evaluation and measurement can be done by some intelligent technique but this is beyond the scope of this chapter and will be considered as a future work to investigate this issue.

The chapter also conclude that "Digital Citizenship" concept would be a good start toward motivating users to follow an appropriate etiquette and code of technical ethics when using ICT. However, in a highly technically sensitive environment, appropriate regular ethical seminars for IT professionals, within the technical environment is highly recommended.

Further research: Based on the proposed framework (FEB), survey(s) needs to be conducted in different environments/societies and/or enterprises to investigate the significance level of acceptability of these mediators and

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moderators categories inclusive of religious ethics in such environment. Such statistical study would then help toward calculating the relevant weights of each one of the proposed variables. These weights would be necessary to evaluate a measuring system probably with artificial intelligence (AI) techniques for ethical behavior. It should be noted however that these weights might vary from one society to another. Due to different religious background and different possible family values, a survey conducted in a specific organization in United States might result a completely different weights from a survey done in organization in United Arab Emirates (UAE) or Saudi Arabia for example. Using the appropriate weights for each region/society, organizations would then be able to build and utilize such system to maintain ethical environment by measuring and act on promoting the ethical behavior to all employees/IT professionals.

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