

THE INTEGRATION OF FORENSIC SCIENCE FUNDAMENTALS AND *AL-QARĪNAH* TOWARDS ACHIEVING *MAQĀṢID AL-SHARĪ'AH*

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UNIVERSITI TEKNOLOGI MALAYSIA

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A thesis submitted in fulfilment of the  
requirements for the award of the degree of  
Doctor of Philosophy (Fiqh Science and Technology)

Faculty of Islamic Civilisation  
Universiti Teknologi Malaysia

SEPTEMBER 2017

Oh Allah!

Make useful for me what You taught me and  
teach me knowledge that will be useful for me

Ameen.

## ACKNOWLEDGEMENT

I would like to express my special appreciation and thanks to my supervisors Associate Professor Dr. Aminuddin Ruskam and Professor Dr. Abdul Rahim Yaacob for giving me guidance, critical comments, and encouragement during my study. Both of you have been tremendous mentors to me. I also want to thank you Dr Naji and Associate Professor Dr. Umi Kalthom Ahmad (FS UTM), Dr. Mahyuddin (UMP), Associate Professor Zulfakar Ramlee (IIUM), Mr. Amidon Anan (UKM), for the opportunity to gain extra knowledge in formal and informal forensic science education during my Ph.D journey. I would also like to take this opportunity to thank Associate Professor Dr. Arieff Salleh Rosman (UTM) and Professor Dr. Amir Husin Mohd Nor (USIM), my viva-voce examiners, for their very helpful comments and suggestions. I gratefully acknowledge the funding received towards my Ph.D from the MyBrain15, Ministry of Higher Education Malaysia (MOHE), from my family especially my brothers and sisters, Mr. Khaled Safi, Pusat Islam UTM and several research grants from UTM-MOHE. I would especially like to thank professors, associate professors, and lecturers of Faculty of Islamic Civilisation, UTM Johor Bharu for giving academic supports along this journey. Special thanks to my family. Words cannot express how grateful I am to my mother and father; Noriyah Razali, Baharuddin Imam Awang, mother and father-in-law; Siti Kartiwi Zainal Abidin, Roslan Majuki, and all my family members for all the sacrifices that you have made on my behalf. All prayers for me were what sustained me this far. I would also like to thank all of my friends who supported me in this journey to strive towards my goal. Finally, I would like to express my appreciation to my beloved wife Siti Robiatun Addawiyah Roslan who spent sleepless nights with and was always my support in the moments when there was no one to answer my queries. Also to Yusuf Fawwaz, for being one of the ultimate reasons for finishing this journey.

## ABSTRACT

The world is calling for forensic science in proving the truth for the justice of sophisticated cases. The impact of separation between religion and science and the negligence of viewing forensic science from the maqāsidic perspective left a huge gap in shariah literatures thus resulting forensic science to become exclusive and alien to Islamic law. Failure in understanding fundamentals of forensic science worsens the situation by giving negative implications towards the incompetency of Islamic law. This study aims to identify forensic science elements in Muslim scholars' view on the admissibility of *al-qarīnah* in Islam, to analyse the relationship of forensic science elements with *maqāsid al-sharī'ah* from its transferability through reported forensic science cases, to analyse fundamental framework of forensics in Islam, and to propose for a fundamental recommendation of forensic science as integration with *al-qarīnah* towards achieving *maqāsid al-sharī'ah*. This qualitative research used Grounded Theory and content analysis method to obtain research objectives. Constant comparative approach on theoretical samples and descriptive, inductive, and deductive approaches on selected primary and secondary sources of data were used in the analysis process with the assist of Atlas.ti version 7 as a software analysis tool. A total of 117 forensic science elements were found which built four key fundamentals namely; 'forensics jurisprudence', 'human capital', 'forensic analysis', and 'accreditation'. The transferability interpreted from the theory towards selected thematic forensic cases proved that all four key fundamentals do exist in preserving the five essential values of human life. In achieving *maqāsid al-sharī'ah*, 'forensics jurisprudence' fundamental acquires a comprehensive understanding of forensics application towards accomplishing the *ma'ālāt* that comprises historical reviews, the terminology of *fiqh* forensics, the reasoning of forensics through *istidlāl* in *usul fiqh* and its relationship with maxims. As for the adaptation for shariah legal purposes, 'human capital' fundamental highlights a holistic approach in achieving *maqāsid al-sharī'ah* through forensic science education and training as well as fulfilling the competency of experts. The 'forensic analysis' fundamental incorporates level of doubt in analysis, ethics, presumptive and confirmatory test, instruments, crime laboratories epistemology, and analysis held by a shariah entity as salient features to minimise *shubhah*. These features contribute to the suggestion of establishing forensics laboratory for shariah legal purposes. The 'accreditation' fundamental reviewed six standards in forensic science; ISO 9001, MS 1900, ISO 17025, MS 2300, SAMM, and ASCLD program. Among all, only ISO 9001 is not complied with shariah principles. The combination of these five standards ensures the quality assurance of forensics application to achieve *maqāsid al-sharī'ah*. Thus, the integration of forensic science with *al-qarīnah* through its fundamentals is proven possible to realise *maqāsid al-sharī'ah*. This study suggests that the four fundamentals should be given priority and evaluation in raising the bar of forensic science in Islam.

## ABSTRAK

Dunia memerlukan sains forensik untuk membuktikan kebenaran dalam pengadilan bagi kes-kes yang rumit. Kesan daripada pemisahan antara agama dan sains serta pengabaian dalam melihat sains forensik mengikut sudut pandang *maqāṣid al-sharī'ah* meninggalkan ruang yang besar dalam penyelidikan syariah menyebabkan sains forensik menjadi eksklusif dan asing kepada undang-undang Islam. Kegagalan untuk memahami teras sains forensik menambah buruk situasi yang memberi imej negatif sistem perundangan Islam sebagai tidak kompeten. Kajian ini bertujuan untuk mengenalpasti elemen sains forensik yang terdapat dalam pendapat ulama berkaitan penerimaan *al-qarīnah* dalam Islam, menganalisis hubungan antara elemen sains forensik dengan *maqāṣid al-sharī'ah* daripada kebolehpindahannya melalui kes-kes yang melibatkan sains forensik, menganalisis kerangka teras sains forensik dalam Islam dan mengusulkan cadangan bagi teras sains forensik melalui integrasi dengan *al-qarīnah* ke arah mencapai *maqāṣid al-sharī'ah*. Kajian kualitatif ini menggunakan metodologi *Grounded Theory* dan analisis kandungan bagi mencapai objektif kajian. Pendekatan perbandingan berterusan terhadap sampel teori dan pendekatan deskriptif, induktif, dan deduktif terhadap sumber primer dan sekunder terpilih telah digunakan dengan bantuan perisian analisis kualitatif Atlas.ti versi 7. Sejumlah 117 elemen sains forensik telah ditemui yang seterusnya membentuk empat kunci teras, iaitu 'falsafah sains forensik', 'modal insan', 'analisis forensik', dan 'akreditasi'. Interpretasi kebolehpindahan daripada teori tersebut terhadap kes-kes forensik terpilih mengikut tema membuktikan bahawa keempat-empat kunci teras telah wujud dalam memelihara lima kepentingan asas dalam kehidupan manusia. Dalam mencapai *maqāṣid al-sharī'ah*, teras 'falsafah sains forensik' menyimpulkan sebuah pemahaman komprehensif bagi aplikasi sains forensik ke arah menyempurnakan *ma'ālāt* yang merangkumi ulasan sejarah, terminologi *fiqh* forensik, pertimbangan forensik menerusi *istidlāl* dalam *usul fiqh* serta hubungkait dengan kaedah-kaedahnya. Bagi adaptasi dalam perundangan syariah, teras 'modal insan' menonjolkan sebuah pendekatan holistik dalam mencapai *maqāṣid al-sharī'ah* melalui pendidikan dan latihan serta penyempurnaan kompetensi bagi pakar. Teras 'analisis forensik' merangkumi tingkatan keraguan dalam analisis, etika, analisis saringan dan pengesahan, instrumen, epistemologi makmal forensik, dan analisis yang dilakukan oleh entiti syariah sebagai ciri-ciri penting bagi mengurangkan syubhah. Ciri-ciri ini memberi sumbangan kepada cadangan penubuhan makmal forensik bagi kegunaan perundangan syariah. Teras 'akreditasi' membuat sorotan terhadap enam piawaian dalam sains forensik; ISO 9001, MS 1900, ISO 17025, MS 2300, SAMM, dan program ASCLD. Antara kesemua piawaian tersebut, hanya ISO 9001 tidak mematuhi prinsip syariah. Kombinasi lima piawaian dapat memastikan jaminan kualiti dalam aplikasi sains forensik bagi mencapai *maqāṣid al-sharī'ah*. Keseluruhannya, integrasi sains forensik dengan *al-qarīnah* melalui teras-terasnya dibuktikan mampu mencapai *maqāṣid al-sharī'ah*. Kajian ini mencadangkan agar keempat-empat teras diberikan keutamaan dan penilaian demi mengangkat kedudukan sains forensik dalam Islam.

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## LIST OF ABBREVIATIONS

AD	-	<i>Anno Domini</i> (before current era)
AFIS	-	Automated Fingerprint Identification System
AH	-	After Hijrah
B.C.E./BCE	-	Before Current Era
C.E./CE	-	Current Era
DAIJ	-	Diploma in Islamic Judiciary and Legal Administration
DNA	-	Deoxyribonucleic Acid
FBI	-	Federal Bureau of Investigation
GT	-	Grounded Theory
IKM	-	Institut Kimia Malaysia
ILKAP	-	Judicial and Legal Training Institute
ITTC	-	<i>Bahagian Industri Dan Klasifikasi Tarif Dagangan</i> (Industry and Trade Tariff Classification)
JAWI	-	<i>Jabatan Agama Islam Wilayah Persekutuan</i> (Department of Federal Territory of Islamic Affairs)
JKSM	-	<i>Jabatan Kehakiman Syariah Malaysia</i> (Shariah Judiciary Department of Malaysia)
KIMIA	-	<i>Jabatan Kimia Malaysia</i> (Department of Chemistry)
NML	-	National Metrology Laboratory
No.	-	Number
p.b.u.h.	-	Peace be upon Him

r.a.	-	<i>Radiallah 'anhu/ 'anhum/ 'anhā</i>
PD	-	Primary Data
pl.	-	Plural
BPA	-	Blood Pattern Analysis
PP	-	Public Prosecutor
PPA	-	<i>Pegawai Penguatkuasa Agama</i> (Religious Enforcement Officer)
RMP	-	Royal Malaysia Police
SAMM	-	<i>Sijil Akreditasi Makmal Malaysia</i> (Laboratory Accreditation Scheme of Malaysia)
SIMS	-	Secondary Ion Mass Spectrometry
SIRIM	-	Scientific and Industrial Research Institute of Malaysia
SOP	-	Standard Operating Procedure
STANDARDS	-	Department of Standards Malaysia
STR	-	Special Technical Requirement
s.w.t.	-	<i>Subhānahu wa ta'ālā</i>

**TABLE OF CASES**

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- Lai Weng Keat v Public Prosecutor - [2015] 6 MLJ 589
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- Kong Nen Siew [1971] 1 MLJ 262
- Wong Chop Saow v Public Prosecutor [1965] 1 MLJ 247

## NOTE OF TRANSLITERATION

Consonants:

Arabic	Transliterated English	Arabic	Transliterated English
ء, ا -	'A, Ā	ص -	Ṣ
ب -	B	ض -	Ḍ
ت -	T	ط -	Ṭ
ث -	TH	ظ -	Ẓ
ج -	J	ع -	'
ح -	Ḥ	غ -	GH
خ -	KH	ف -	F
د -	D	ق -	Q
ذ -	DH	ك -	K
ر -	R	ل -	L
ز -	Z	م -	M
س -	S	ن -	N
ش -	SH	و -	W

ه	-	H	ي	-	Y
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Diphthong:

Arabic		Transliterated English	Arabic		Transliterated English
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أَي	-	ay	أَوْ	-	aw
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Vowels:

Arabic		Transliterated English
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آ	-	ā
---	---	---

إِي	-	ī
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أُو	-	ū
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## GLOSSARY OF ISLAMIC TERMS

<i>Akhlāq</i>	-	Good virtue
<i>‘Aqīdah</i>	-	Faith
<i>Al-bayyinah</i>	-	Mean of proof
<i>Al-ḍarūriyyāt al-khamsah</i>	-	Five essential values
<i>Faskhu al-ḥukm</i>	-	Termination of judgement
<i>Ḥifẓ al-dīn</i>	-	The preservation of religion
<i>Ḥifẓ al-naḥs</i>	-	The preservation of life
<i>Ḥifẓ al-‘aql</i>	-	The preservation of intellect
<i>Ḥifẓ al-māl</i>	-	The preservation of property
<i>Ḥifẓ al-nasl/‘ird</i>	-	The preservation of lineage/dignity
<i>‘Ibādāt</i>	-	Worshipping
<i>Jumhūr</i>	-	Most scholars
<i>Muāmalāt</i>	-	Transaction
<i>Al-qarīnah</i>	-	Circumstantial Evidence
<i>Sanad</i>	-	The chain of narrator (in a hadith)
<i>Ṣaḥīḥayn</i>	-	Refers to Ṣaḥīḥ Bukhari and Muslim
<i>Shubḥah</i>	-	Doubts, conjecture, hesitation
<i>Al-qāḍī</i>	-	Judge
<i>Al-iqrār</i>	-	Confession
<i>Al-shahādah</i>	-	Testimony
<i>Al-yamīn</i>	-	Oath
<i>Ulamā’ al-mutaqaddimīn</i>	-	Previous scholars
<i>Ulamā’ al-mu‘āṣirīn</i>	-	Present/latest scholars

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## CHAPTER 1

### INTRODUCTION

#### 1.1 Preliminary Study

Technology is constantly evolving as the world has been rapidly changed. Human society nowadays became more sophisticated, more advanced and completely different as days passed. Technology has drastically changed everything making the daily life easier, more efficient, and undoubtedly influencing people by changing the expectations and realities. Forensic science is one of the areas that develop in great speed. The development and improvement of technology used in the field of forensic obviously helps in providing goodness, eliminating harms and giving justice. Prior to its field, forensic science merely gives benefits in the judicial aspect in helping to solve cases and convict criminals. Moreover, forensic science has shaped the world of justice by setting up its prior to be in higher level in court. Without forensic science, the truth behind some of the most sophisticated criminal actions would remain unsolved. Certainly, with the advancement of technology and the development of new methods and techniques in this forensic field will precise and increase the accuracy of solving the crimes.

Admittedly, *al-qarīnah* has been used from the earlier presence of Islam to prior justice in first place. In a glimpse, the relation between forensic science and *al-qarīnah* in preserving human essential values gives a general hypothesis that forensic

science has its own role in preserving the five essential values in *maqāṣid al-sharī'ah*; faith, life, lineage, intellect, and property. In the same time, *al-sharī'ah* is commonly grounded on interests to the individual and community, and it is intentioned to protect and preserve benefits and to provide and perfect a better condition of human life on earth. *Maqāṣid al-sharī'ah* is the knowledge of the goals or the purposes that Allah (s.w.t) has considered in formulating the laws of Islam. It discusses on why of the particular legislation of rule legislated. The discoveries of the relationship between forensic science and *maqāṣid al-sharī'ah* through the integration of *al-qarīnah* has yet to be done. Hence, this qualitative study was conducted to fill the gaps.

## 1.2 Background of Study

Advanced technology and sophisticated crime strategies nowadays contribute to large numbers of very complicated, difficult to be solved and well-planned cases. Criminals will try their best to conceal crimes using various methods and strategies. In a reference to the Islamic law introduced by Islamic countries such as Saudi Arabia, Pakistan, Sudan, Iran, and Malaysia, there are some enactments and statutes concerning the law of evidence and its validity. However, there is a situation where some means of proof has become insufficient and inefficient in assisting to solve crimes and cases. Some of the methods are also out-dated and incapable to solve professional and sophisticated crimes thus bring injustice to victims. It is an unavoidable problem faced in these countries.

As reported by Laupa Junus (2004), by focussing on the development of science and technological progress in the field of forensic science can be useful in criminology field. Forensic science has helped law enforcement in solving crimes through detection methods such as fingerprinting, the firearms identification (involving the examination of bullets and shells and gunfire residue analysis), classification of blood, deoxyribonucleic acid (DNA) profiling, analysis trace

evidence, other analyses, including examination of documents, digital forensics and forensic medicine (as known as forensic pathology). DNA profiling, for example, was first introduced and adopted in 1986 in England when police ordered Allec Jeffreys from England who studied the use of DNA in forensics, to prove the testimony of a 17-year-old youth in a rape and murder case in England's Midlands. The DNA profiling test then confirmed the teenager is the victim and not long after that, the real rapists arrested also using DNA profiling methods (Cormier *et al.*, 2005).

Historically, it was recorded in the story of Prophet Yūsuf (p.b.u.h.) and *imra'ah al-'azīz* (the wife of the governor) that *al-qarīnah* had been used to determine true facts of the situation. Therefore, the tear of Prophet Yūsuf's (p.b.u.h.) garment at the back is a powerful form of *al-qarīnah* to show that Prophet Yūsuf (p.b.u.h.) did not harass the woman but in fact that woman pursued him. The verses are as in the sequel below:

i. Case occurred:

قَالَ هِيَ رَاوَدَتْنِي عَنْ نَفْسِي وَشَهِدَ شَاهِدٌ مِنْ أَهْلِهَا إِنْ كَانَ قَمِيصُهُ قُدَّ مِنْ قُبُلٍ  
فَصَدَقَتْ وَهُوَ مِنَ الْكَاذِبِينَ (٢٦)

Translation: He (Yūsuf) said: "It was she that sought to seduce me," and a witness of her household bore witness (saying): If it be that his shirt is torn from the front, then her tale is true, and he is a liar!

(Sūrah Yūsuf, 12: 26)

ii. Hypothesis inferred:

وَإِنْ كَانَ قَمِيصُهُ قُدَّ مِنْ دُبُرٍ فَكَذَبَتْ وَهُوَ مِنَ الصَّادِقِينَ (٢٧)

Translation: "But if it be that his shirt is torn from the back, then she has told a lie and he is speaking the truth!"

(Sūrah Yūsuf, 12:27)

iii. Investigation started and evidence found:

فَلَمَّا رَأَى قَمِيصَهُ قُدَّ مِنْ دُبُرٍ قَالَ إِنَّهُ مِنْ كَيْدِكُنَّ إِنَّ كَيْدَكُنَّ عَظِيمٌ (٢٨)

Translation: So, when he (her husband) saw his (Yūsuf's) shirt torn at the back; (her husband) said: "Surely, it is a plot of you woman! Certainly, mighty is your plot!

(Sūrah Yūsuf, 12:28)

iv. Judgement and decision:

يُوسُفُ أَعْرِضْ عَنْ هَذَا وَاسْتَغْفِرِي لِذَنْبِكِ إِنَّكِ كُنتِ مِنَ الْخَاطِئِينَ (٢٩)

Translation: "O Yūsuf! Turn away from this! (O woman!) Ask forgiveness for your sin. Verily, you were of the sinful."

(Sūrah Yūsuf, 12:29)

To be noted in this account, *al-qarīnah* has been discovered through a few concepts of basic forensic investigation as mentioned above. The verse 26 literally shows that there was an investigation made to discover the real condition of situation. Prophet Yūsuf's (p.b.u.h) shirt can be considered as physical evidence as Siegel (2007) says that physical evidence consists of objects or things. The verse also could be relatively used nowadays to be related with the outsole impressions and insole imprint in the concept of forensic evidence. Hence, it demonstrates that the account of the Prophet Yūsuf (p.b.u.h.) contains the admissibility of forensic science within the concept of *al-qarīnah* in Islam. As for the famous hadith in the book of *al-ghanīmah* (spoils of war) (al-Bukhāri, 2001)<sup>1</sup>, Ibn Rajab (1996) said that in this hadith Prophet Muhammad (p.b.u.h.) noticed that the sword of Ibn al-Jamuḥ had been penetrated deep

<sup>1</sup> The hadith refers to (Translation): While I was standing in the row on the day (of the battle) of Badr, I looked to my right and my left and saw two young Ansari boys, and I wished if I were between some stronger (men) than they. One of them called my attention saying, "O Uncle! Do you know Abu Jahl?" I said, "Yes, what do you want from him, O my nephew?" He said, "I have been informed that he abuses Allah's Messenger. By Him in Whose Hands my soul is, if I should see him, then my body will not leave his body till either of us meets his death." I was astonished at that talk. Then the other boy called my attention saying the same as the other had said. After a while I saw Abu Jahl walking amongst the people. I said (to the boys), "Look! This is the man you asked me about." So, both of them attacked him with their swords and struck him to death and returned to Allah's Messenger to inform him of that. Allah's Messenger asked, "Which of you has killed him?" Each of them said, "I have killed him." Allah's Messenger asked, "Have you cleaned your swords?" They said, "No." He then looked at their swords and said, "No doubt, you both have killed him and the spoils of the deceased will be given to Mu'adh bin 'Amr bin al-Jamuh"

(The two boys were Mu'adh bin 'Afra' and Mu'adh bin 'Amr bin Al-Jamuh)

(al-Bukhāri, 2001: Hadith No. 3141)

into the body of the killed man (Muhammad Muhsin Khan, 1997). Literally, this hadith shows that the Prophet Muhammad (p.b.u.h.) decided in the use of *al-qarīnah* within the basis of forensic science. The exhibit of blood stained on the swords of the two claimants was used by the Prophet (p.b.u.h.) as a truth indicator of the claim. Generally, the indication of blood stain was an amazing witness as theorised by Ibn al-Qayyim (d. 751 AH/ 1351 CE) (n.d.). This put the level on the same par as other means of proof in giving the justice to mankind through the preservation of human essential values. As a theory, this method is the same as used by forensic analyst known as Bloodstain Pattern Analysis (BPA), within the considerations of biological, chemical, and physical to identify the real situation of any cases. BPA is a discipline that uses the fields of biology, physics, and mathematics (James *et al.*, 2005). As an inference, if more extensive analysis made to elaborate on this story, the method used by Prophet Muhammad (p.b.u.h.) could be classified to be in sync with other reliable forensics methods such as DNA profiling method under criminalist forensics. It is also inferred by that time Prophet Muhammad (p.b.u.h.) has already used the forensic science application to solve cases but within the technology limitation. None of the less we can also infer that based on this account, the Prophet Muhammad (p.b.u.h.) has taken the role as an investigator to investigate the real situation and scrutinised the sword which can be related to basic principles of crime scene investigation.

These are just two samples of cases from numerous Islamic classical accounts that relatively contain the forensic science values to be discovered. All of them are barely fundamental theories, basic principles, inferences and equations in forensic science that can be connected with *maqāṣid al-sharī'ah*. In order to discover more on the forensics elements in classical manuscripts and whether forensic science can realise *maqāṣid al-sharī'ah* or not, further research has to be made. As a preliminary theory based on these introductory studies, forensic science has its own fundamentals in achieving *maqāṣid al-sharī'ah*. Hence, research must be made to demonstrate such theory.

### 1.2.1 The Impact of Separation Between Religion and Sciences

George Sarton, a science philosopher described that during the period 750-1100 A.D., the Muslims were the intellectual pioneer whole world (Ramli Awang *et al.*, 2014). Researchers among the globe agreed on the glorious contribution of Muslims in the science world. This notable achievement was then slowly decreased due to the separation of religion and science. Separation of religion and science began to happen after 14<sup>th</sup> century as the Islamic world began to diminish gradually in size. Thus, there were several impacts occurred including the knowledge separation where Muslims learned science apart from religious knowledge. Lack of understanding science from the religious view and the isolation of religious ethics in practicing scientific analysis were among the consequences of this circumstance.

From the forensics field, Mitcham (2005: 184) in *Encyclopaedia of Science, Technology, and Ethics* stated that there are few issues and challenges that need to be overcome which are:

- i. To preserve the evidence from damage before, during, and after the evidence being collected from crime scenes or in storage facilities and laboratories.
- ii. To give accurate analysis and genuinely present the findings and justify how crimes occurred in legal proceedings to assist in the crimes conviction.
- iii. To expand and preserve the professionalism of forensics through knowledge sharing and regular practice.
- iv. To acquire, attest, confirm, and preserve laboratory equipment.
- v. Truthfully testifying about analytical methodologies, findings and credentials to examiners.
- vi. To be qualified in presenting those finding as an expert in the forensic field.

(p.184)

All these challenges need to be handled wisely by forensic practitioners. However, it is not as realistic as written in report or journal. There are many cases which are still in revision for the time being as they were so many analyses handled in inappropriate ways. Many cases cannot be solved as the ethics could not be followed in definite.



Significantly, all these issues must be overcome to provide a consistent standard of evidencing through forensic science. Those issues are likely pointed to the role of ethics in conducting any forensics analysis. The reason on why these issues cannot be overcome is when the fundamentals or basic principles are not being complied with real ethics standards (Cordner, 2013). As for an example, in medical (including forensic pathology) ethics, Omar Kasule (2004, 2007) said that the increase in moral and ethics violations by medical practitioners in European countries has become a dilemma as moral values were not part of the secular science tradition in recent 20<sup>th</sup> centuries. The renaissance of the discipline of ethics thus became inevitable recently thus attempts to explore more on the topic are still ongoing. But the truth is, the implication of the separation between science and religions has replaced the way of practicing 'shariah-guided' forensic science with the Western style. This situation occurred as some of them believed that Islam is an obstacle to human life (Ramli Awang *et al.*, 2014).

From preliminary investigations<sup>2</sup>, Muslim practitioners in the field of forensic science do not have the definite idea on this issue. The investigation held on the basic knowledge of Islamic ethics, criteria of becoming an expert witness in Islamic law and historical review of Islamic practice in forensic analysis, in general, showed that they have very least knowledge in this basis. Several factors have been hypothesised such as isolation impact of the separation between science and religion through the educational programme (Ramli Awang *et al.*, 2014), and lack of research conducted in correlating forensic science with religions. They do realise about the existence of religions dilemma towards forensics practical (al-Husseini, 2011; Ruddy, 2010), but at the same time, they do not really understand on basics or fundamentals of forensic evidence in Islam that need to be prioritised.

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<sup>2</sup> Preliminary investigations have been conducted through unstructured interview and brainstorming sessions with randomly chosen Muslim forensic science practitioners in 2014.

### 1.2.2 The Need for Forensic Science in Proving the Truth in Islam

In recent years, the world has claimed that Islamic law does not efficient to bring justice to people (Rose, 1995). Islamic law fails to convince the society for its efficiency in convicting crimes through advanced and latest development of technology. Contrary to that, another justice system has been linearly up to date in the advancement of technology used in court cases especially when it comes to the use of forensic science as circumstantial evidence in court. For that reason, this study is conducted in a contribution of adapting prior standards of *al-qarīnah* to the application of forensic science in Islamic law. This will similise the priority of *al-qarīnah* with *al-shahādah* and *al-iqrār* in their way achieving *maqāṣid al-sharī'ah*. This also consequently attributes to restore the perspective on the efficiency of Islamic law to preserve of human's *maṣlahah*.

Moreover, the priority of *al-shahādah* and *al-iqrār* in Islamic law are accepted by the *jumhūr* (most scholars) as it comes from *uṣūl al-qaṭ'īyyah* (definitive divine scripts) (Lukman & Wan Abdul Fattah, 2012). The problem is, in today's world conviction of crimes and solving cases through the evidencing by *al-shahādah* and *al-iqrār* is almost impossible due to (Abdul Hamid, 2014):

- i. *Al-iqrār*: when it comes to the situation when the true Islamic teaching is not fully practiced within the situation of *al-īmān* and *al-taqwā* are hardly to be achieved, how can we expect the criminals to confess themselves for the conviction of crimes? (Abdul Hamid, 2014). Also, as time changed, this present century is way too far from the days of Prophet Muhammad (p.b.u.h.) and the companions. So, it is hard to find the generation that mentioned by the prophet as the best generation of all time as in the hadith narrated from 'Imrān bin Ḥusayn<sup>3</sup>.

<sup>3</sup> The hadith refers to:

خَيْرُ أُمَّتِي قَرْنِي، ثُمَّ الَّذِينَ يَلُوبَهُمْ، ثُمَّ الَّذِينَ يَلُوبُهُمْ - قَالَ عِمْرَانُ: فَلَا أَذْرِي أَذْكَرَ بَعْدَ قَرْنِيهِ قَرْنَيْنِ أَوْ ثَلَاثًا - ثُمَّ إِنَّ بَعْدَكُمْ قَوْمًا يَشْهَدُونَ وَلَا يُسْتَشْهِدُونَ، وَيَخُونُونَ وَلَا يُؤْتَمَنُونَ، وَيَنْدُرُونَ وَلَا يُؤْفُونَ، وَيَطْهَرُ فِيهِمُ السَّيْمُنُ

Translation: The best of my followers are those living in my century (generation), then those coming after them and then those coming after the latter". 'Imran added, "I do not remember whether he mentioned two or three centuries (generations) after his century (generation), then the Prophet added,

- ii. *Al-shahādah*: as mentioned in various books of *fiqh*, there are certain criteria applied to the direct witness before approved by *qāḍī* to accept their testimonies. As time changed, the same situation goes here. It is hard to find the accurate and fit witnesses in a conviction. Yet, justice could not be implied. What is left in every case is the role of expert witnesses either whose analysed *al-qarīnah* and being brought to the court to explain on the analysis made. In forensic science field, they have been known as either forensic scientist or forensic investigator.

Next, the advancement of technology in this era leads to sophisticated and well-planned crimes. Evils and harms affected the society badly. The general principle of *maqāṣid al-sharī'ah* is to preserve the conciliation of the goodness and eliminate harms as said by Ibn 'Āshūr (1984). Theoretically, this *maqāṣid* element in forensics has been introduced long time ago to preserve the essential values of human life. Yet to be confirmed no detailed research has been made to integrate on the role of forensic science in realising *maqāṣid al-sharī'ah*. This is important to genuinely prove on how *maqāṣid al-sharī'ah* can be obtained by the role of forensic science. If the role of forensic science can be proved to realise *maqāṣid al-sharī'ah*, it will give additional values to forensic science itself to be raised a par higher in preventing harms and preserving goodness. This is one of the main aspects of Islam. This does not mean that the fundamentals that exist nowadays are totally in contradict with Islamic principles. But it means that this recent development of technology should be linked with the pillars of religion to achieve *maqāṣid al-sharī'ah*. Hopefully, by highlighting on the integration between forensic science and *al-qarīnah* within the realisation of *maqāṣid al-sharī'ah*, this study will significantly fill the theoretical gap.

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"There will come after you, people who will bear witness without being asked to give witness, and they will be dishonest and not trustworthy, and they will vow and will not fulfil their vows; and fatness will appear among them."

(al-Bukhāri, 2001: 5/2 Hadith No. 3650)

### 1.2.3 Prioritising Justice to Mankind Through *Maqāṣid al-Sharī'ah*

Islam prioritises justice in life that is a part of the preservation of *maṣāliḥ* or *al-darūriyyāt* ('Uthmān, 1994: 1). The *al-darūriyyāt* has been discussed thoroughly in the field of *maqāṣid* through five consecutive values namely; faith, life, lineage, intellect, and property. These are by definition according to al-Shāṭibī (d. 790 AH/ 1388 CE) (1997: 3/7), necessary in society to preserve the values that related to the tranquillity and calmness. *Al-sharī'ah* is entirely looking forward in the priority of maintaining these essential values and validates all measures necessary for their protection and development (Kamali, 1999). With the worst-case scenario nowadays, Islamic law should be implemented systematically and some particular parts of the law need to be carefully repositioning to be in line with the advancement of technology. As in other parts in Islam such as banking and finance there are a lot of improvement made. As long as it is not being in contradict with *nuṣūṣ* (descriptive) and *adillah* (script) within the role of *maṣāliḥ al-mursalah*, the repositioning process can be done by stages. The first step to be taken is to know the basic fundamentals of certain technology especially in forensic science field.

Moreover, as we talk about the issue of *al-shubhāt* (pl. of *al-shubhah*: doubts, conjecture, hesitation) in the issue of *al-qarīnah*, it is a big problem as Islamic law is strictly relied on the concept of *al-yaqīn* in so many important judicial cases such as *al-ḥudūd*, determining *al-nasab* and the determination of belongings or one's properties. As forensic science could prove and helps in all issues related, there are parts which carry the elements of *al-shubhah*. As told by al-Majali (1990), *al-shubhah* can exist in different ways, for examples, *al-shubhah fī al-makān* and *al-shubhah fī al-zamān*. The challenge of using forensic evidence in evidencing shariah cases is to determine the weight of the evidence through analysis made. In assist to this determination process, human and machine mistakes seldom being made through the analysis process thus creating *al-shubhah* in analysis and management. This *al-shubhah* should be defined clearly as it is a part of the forensic science basics. Defining the precise standard in accepting scientific evidence helps in eliminating the *al-shubhah*. Yet, this is another loophole of this field that needs to be explored.

Let us take an instant analysis on other established ‘human-basis’ laws around the world such as British law and Indian law. Their courts have certain standards in accepting forensic analysis to be carried out as evidence in court<sup>4</sup>. In sequence with the issue of *al-shubhah* that has been raised before, Islamic legislation especially court should have its own parameters or standards in accepting or take into any consideration to hear on forensic evidence. Due to lack of research and study in the field of integration between forensic science and Islamic legislation, Islamic law nowadays in deficiency to rejuvenate the system. Thus, many cases and problems cannot be solved competently. It should have its own parameter in accepting any forensic evidence since Islam already has its own guidelines based on al-Qur’ān and al-Sunnah.

Moreover, a review made by Nik Noraini (1994: 1) on rape cases in Pakistan through the Ordinance 1979, the Offence of Zina (Enforcement of Ḥudūd) claimed that there is a need to rejuvenate the evidencing procedure in order to bring justice at the first place. The review denotes that the Islamic law does not serious in preserving human essential values. Also, there is no differentiation made between the proof required for rape and zina cases. Both demanded four male witnesses for the penetration activity. How could a woman prove that she has been raped when the evidencing procedure strictly relies upon the aforementioned requirement? The worst-case scenario, if she is pregnant without any marriage due to the rape, her pregnancy could be used towards evidencing the act of zina against her. Without any further research, clarification, and discussion on this topic, some may use this case of study as evidence that it is impossible to realise *maqāṣid al-sharī‘ah* based on the decision made. Others may give the opinion and speculation that Islamic law is irrelevant nowadays as it cannot prior and preserve essential values of the human.

As a further matter, for the purpose to prioritise justice into first place, Islamic law is consist of many branches of law such as family law, commercial law, civil and criminal law. To prior justice, each law has their own role within the guidance of al-Qur’ān and al-Sunnah. As an example, the law of evidence is salient to create and

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<sup>4</sup> Reader might also be interested in some of the preceding research and reviews. See for examples; Giannelli (2011) and Risinger *et al.* (2002).

develop the legal structure to be effectively controlled in successfulness (Zulfakar, 1997). The three-accepted means of proof namely; *al-iqrār* (confession), *al-shahādah* (testimony) and *al-yamīn* (oath) are formally acknowledged by Islamic law of evidence throughout the history (al-Zuḥayli, 1985: 6/258: al-Tawijirī, 2009). Another mean of proof that has been debated by the jurists is *al-qarīnah* or in conventional law, it is known as circumstantial evidence (Zulfakar, 1997, 2015). Scientific evidence can be listed under this mean according to some scholars. However, forensic evidence does not only cover on the analysis aspect, but it is wide including other aspects such as quality assurance and human intelligence. The issue occurs when the technology and development of science cannot be wisely integrated with *al-qarīnah*. This is because scholars have not yet responded on the importance of forensic science as *al-qarīnah* to preserve human essential values, especially in *maqāṣid al-sharī'ah*. This is as Raquib (2013) said:

Islam has an essential social-ethical-legal dimension in addition to the interior faith of the individuals. A technology inspired by the Islamic objectives and ideals shall cater to the social-ethical-legal dimension. While modern technology distances people from attributes such as social responsibility, compassion and self-restraint, furthering aimless recreation, objectives (maqāṣid) of Sharia oriented technology should help fulfil objectives that allow individuals to live a humane life, allowing them to be contemplative and self-reflective which are essential characteristics for developing a religious consciousness.

(p.6)

She stated that the role of technology in the human life should be oriented through *maqāṣid al-sharī'ah*. She also stated that there is an urgent need in the Muslim world to broaden the scope of *fiqh* in order to respond to the nature of modern technology. The challenges from contemporary technological paradigm can be encountered through critical discourse and discussion on the *maqāṣid al-sharī'ah* that comprehend the notion of *maṣlaḥah* within the context values in the technological progress model (Raquib, 2016). In related with this theory, the justice to mankind could be misdirected through the misunderstanding of forensic science. This situation can be overcome by a thorough understanding of forensic science fundamentals.

#### 1.2.4 Failure in Understanding the Fundamentals of Forensics Leads to Irrelevant and Misinterpretation in Legal Reasoning (*Ijtihād*) of *al-Hukm*

Finally, so many of the judicial opinions dealing with forensic evidence employ such tortured logic that it is impossible to believe that courts are blind to the empirical realities of this evidence. It appears, therefore, that lack of will is a better explanation than plain ignorance.

(Saks & Faigman, 2008)

The reasoning method in Islam required the authority to have enough knowledge before making the conclusion on certain issues. This methodology is not limited to the *mufti* or religious counsel only, but it is mandatory for the shariah officers including *qāḍī* in which when the admissibility of scientific evidence has been raised in Syariah Court. Scientific evidence had been widely used in Civil court in Malaysia as from February 2013 until November 2015, there were about 600 cases reported to inclusively call upon forensic experts as witnesses and deal with forensic evidence including both civil and criminal matters (LexisNexis® Malaysia, 2015). Meanwhile, in Syariah Court, the application of scientific evidence was very limited. Scientific evidence started to be used in 2007 through DNA evidence in a criminal case which was welcomed with lots of argumentation when it first introduced in Syariah Court in Malaysia ("*Pendakwa Syarie Negeri Sabah lwn. Rosli bin Abdul Japar*," 2007; Zulfakar, 2015). Since the year 2007 until 2014, the cases that were found to use forensics experts and scientific evidence as part of the trials were in a small amount (Muhammad Azhari, 2015; Ridha Abdah, 2015). This statement shows how forensics is likely to be exclusive and odd to shariah cases thus resulting Former Malaysia Chief Justice, Tun Abdul Hamid (2014) in his speech to state:

*"Cabaran paling besar kepada Brunei ialah bagaimana Pegawai-Pegawai Penyiasat Syari'ah, Pegawai-Pegawai Pendakwa Syari'ah dan Hakim-Hakim Syari'ah akan menjalankan tugas-tugas mereka dalam menyiasat, mendakwa dan membicarakan kes-kes itu, sekurang-kurangnya di peringkat awal. Selama ini, pengalaman mereka hanya terhadap kepada kes-kes jenayah kecil seperti khalwat. Apabila undang-undang itu dilaksanakan, tiba-tiba mereka akan terpaksa menangani kes-kes yang lebih rumit seperti menyebabkan kematian, rogol dan menyebabkan kecederaan yang juga akan melibatkan penerimaan keterangan saintifik melainkan jika mereka*

*hanya akan menunggu orang yang disyaki membuat pengakuan melalui iqrar, yang tidak mungkin berlaku... Penghakiman-penghakiman itu akan mencerminkan mutu pentadbiran keadilan yang mereka lakukan.”*

(p.13)

The text was quoted in referring to his opinion regarding the implementation of Sharia Penal Code Order 2013 by the government of Brunei. He questioned on how the practical will be for shariah officers including judges in dealing with scientific evidence in court later. Any decision made will later display the quality of judgement and will be worldly viewed. With that, failure in understanding the basics of forensic science leads to irrelevant and misinterpretation in legal reasoning of *al-ḥukm* (judgement/rules) (Ahmad Syukran, Amidon, *et al.*, 2015).

Conducting *ijtihād* is a salient feature in justice administration as Islam orders to carry out judgement with the best of his ability on the trial (al-Saggaf, 2013). As in hadith number 1716 in *Ṣaḥīḥ Muslim* (n.d.)<sup>5</sup>, it is a separable task from issuing and carrying out the judgement whereby the judge needs to respond to the cases brought including the evidence available before making judgement. In a related situation, the need to understand precisely on each area of forensic evidence either by the assistance of experts is the salient action before considering making *ijtihād*. This situation was supported by Schiffer (2009) who explained on relationship of judicial error with forensic science. He simplified the relationship through Figure 1.1.

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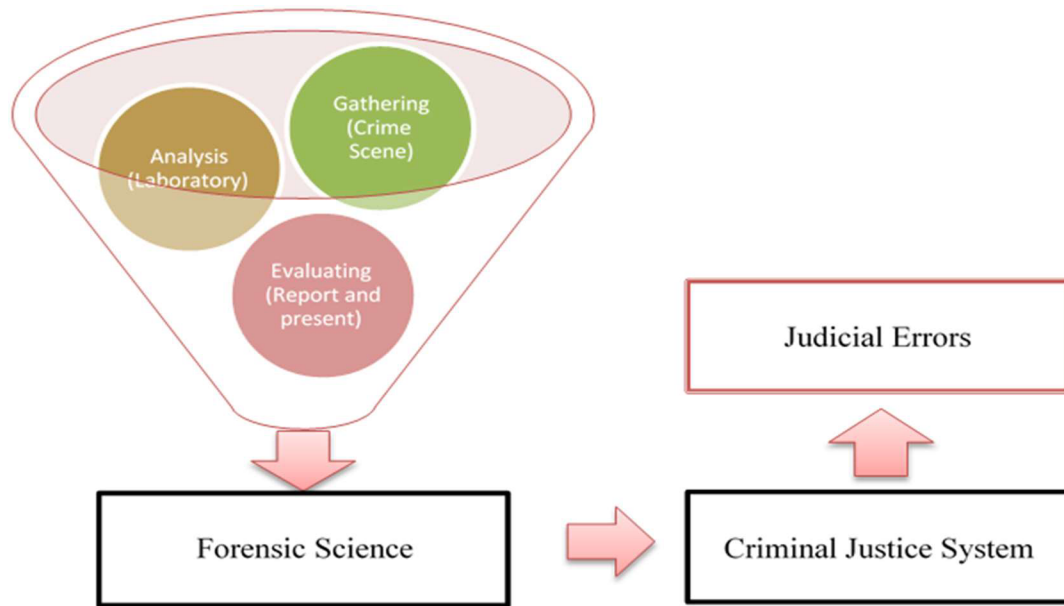
<sup>5</sup> The hadith refers to:

عَنْ عَمْرِو بْنِ الْعَاصِ، أَنَّهُ سَمِعَ رَسُولَ اللَّهِ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ قَالَ: إِذَا حَكَمَ الْحَاكِمُ فَاجْتَهَدَ ثُمَّ أَصَابَ فَلَهُ أَجْرَانِ، وَإِذَا حَكَمَ فَاجْتَهَدَ ثُمَّ أَخْطَأَ فَلَهُ أَجْرٌ

Translation: Amr ibn al-‘Aṣ reported: The Messenger of Allah, peace and blessings be upon him, said, “If a judge makes a ruling, striving to apply his reasoning (*ijtihād*) and he is correct, then he will have two rewards. If a judge makes a ruling, striving to apply his reasoning and he is mistaken, then he will have one reward.

(Muslim, n.d.: 3/1342)





**Figure 1.1** A Simplified Model of Forensic Science and Judicial Error by Schiffer (2009)

Schiffer (2009: 200) added that the judicial error can also occur due to some lacks in forensic science or the justice system. Either it occurs in the analysis, gathering and evaluation process, or in the justice system itself such as the possibilities of misunderstanding statistical and probabilistic data presentation (Thompson & Schumann, 1987). How could the judges come to the correct judgement when the court was being presented with misinterpretation due to lawyer's fallacies and if it so, how could the shariah judges know there were fallacies when they have a minimum education background in forensic science or at zero?

Moreover, the academic research in connecting the religious with forensics field is a never-ending story as the forensics technology rapidly evolves. Misunderstanding the concept and principle in forensics field can cause to a serious fallacy in justifying related issues. As for an example, Mohd Noor (2003) in his dissertation has misunderstood the principle of screening and qualitative analysis that applied in cases related to the intoxication. This researcher did not treat this idea well. This is due to the misunderstanding of the forensic science basics and principles. He concluded that the weight of evidence from a qualitative analysis of intoxication could

be accepted in shariah court without further detailing on which analysis is admissible in shariah court. Therefore, forensic science should have been understood through extensive research works beginning with its fundamentals. However, to the best of researcher's knowledge, no study has been found so far conducted to explore on the fundamentals of forensic science within the Islamic perspectives.

### 1.3 Problem Statement

Problem statement simplifies the gaps of selected research field into concise statements. Research gap is the most important part in the beginning of a study. The gap in other word is a discontinuity in certain part in the field of study. Based on earlier literature and background of studies in this topic, there are several gaps has been identified. These statements should be read along with the background of study for more explanation. Firstly, the impact of separation between science and religion has resulted the world to a dualistic education program. Also, this implication has diminished the practice of religion in science application. One of the fields that affected is the forensic science field. The impact contributes to major issues in forensic sciences and Islam especially in the field of *fiqh al-jināiyy*. Recent cases in forensic sciences proved that ethical issues, human errors, misinterpretation of forensic evidence in court, instrumentation, and accreditation have emerged as the main issues nowadays (Cordner, 2013). Lack in understanding science from the religious view and the isolation of religious ethics in practicing scientific analysis were among the consequences of this circumstance (Kasule, 2004, 2007). This is due to the thought that religion makes the life difficult in any aspect (Ramli Awang *et al.*, 2014). Yet no specific research was found to re-integrate the field of forensic science and Islam from its ground. The philosophical, principles, ethics historical and foundations should be recommended through a comprehensive analysis to prove that the integration is existed and rebut the thought that said the application of religion in science bring difficulties in life.

Hence, another issue is how Islam integrates the role of advanced science and technology with *maqāṣid al-sharī'ah* principles. *Al-qarīnah* has been crucial not only for scholars but also legislatures and judiciaries (Zulfakar, 1997). This is to preserve the essential values in human life. Generally, Imām Mālik and Aḥmad also supported by Ibn al-Qayyim put *al-qarīnah* in the equal degree with the evidence of *al-shahādah* and *al-iqrār*, while other scholars just acknowledge it as supportive evidence in a criminal conviction (al-Zuḥayli, 1982: 8/259). With that, further research must be conducted to reveal on why those scholars acknowledged *al-qarīnah* in the equality of *al-shahādah* and *al-iqrār* as it will then strongly show that *al-qarīnah* has an important role in preserving essential values in human life. In fact, many kinds of research have been conducted to explain on the admissibility of *al-qarīnah* but yet to found on the relationship and integration through the definite scripts. There must be some points that really special towards *maqāṣid al-sharī'ah* since its acceptance has also been agreed by prominent scholars (Ibn al-Qayyim, n.d.; Ibn Farḥun, 1986).

Moreover, it is crystal clear that shariah law is a complex legal system derived from the authoritativeness of its sources based on faith. The basic of this legal system ratifies absolute principles in order to protect innocent people from uncorroborated conviction (Anwarullah, 1999). Despite that *al-shahādah* and *al-iqrār* are in the highest level of admissibility, it does not mean that other means of proof should be ignored. Forensic evidence, for example, did not directly be mentioned in al-Qur'ān and prophetic tradition 1400 years ago, therefore it did not exist in its definite form as today. As Badawy (2009) said forensic evidence sometimes can effectively replace the traditional means of proof when complemented with other circumstantial evidence. This issue has given an implication in understanding the shariah law itself. In Malaysia context, shariah law has been recognised as one of the judicial systems of the country. Some issues occur in comprehending the terminologies related to the term *al-qarīnah*, *al-bayyinah* and *al-shahādah*. Based on Ruzman (2014) research, he proved that *al-qarīnah* has been categorised under the term of 'circumstantial evidence'. In the same time, it refers to 'relevant fact'. The legal definition of these two terms is absolutely different as defined by "Syariah Court Evidence (Federal Territories)" (1997). This caused forensics application in shariah legislation is a way far behind from its

application in Civil legislation. This author suggests for a repositioning of *al-qarīnah* and more clarification on the term mentioned in Section 3 of the Act. This justification through comprehensive understanding on the fundamentals of forensic science could assist in repositioning these terminologies (Ruzman, 2015). Hence, due to these circumstances, forensic science as integration with *al-qarīnah* need to be explored as the need in proving the truth in Islam.

Thirdly, it is agreed that in most of shariah literatures, scientific evidence is sorted under the *al-qarīnah* category. Only after 17<sup>th</sup> century, prominent scholars were found to put some of the scientific evidence into the *al-bayyinah* category as scientific elements were found in related cases. The purposes and the aims of forensic science are leading towards to safeguard human important values and to remove harm in society. This is the reason why other judicial systems have adapted it for about centuries. It is a big loss if forensic science cannot be adapted as one of the mean of proof in shariah law independently (Zulfakar, 2011). An issue arises here when forensic science has rapidly grown and expanded to become such a great discipline in human life. Where is its place in the discussion of *maqāṣid al-sharī'ah* and how could it has related to this field? This however needs a strong argumentation through reasoning method from the authoritativeness of Islamic sources in which can be complied with *maqāṣid al-sharī'ah* (Hallaq, 1984; Nyazee, 1996). As far as researcher concern, there is no academic research that tried to give a strong argumentation to adapt forensic science in whole within *maqāṣid al-sharī'ah* formulation.

Lastly, legal reasoning and deep understanding of forensic science fundamentals are the basic foundations towards the person who deals with forensic evidence. Failure in understanding the fundamentals of forensics lead to irrelevant and misinterpretation in reasoning. Based on background of the study, there is a resurgence in apprehending the foundation of forensic science in dealing with forensic cases or in conducting research in the related area. This could minimise errors in judicial interpretation of forensic evidence and ensure accurate findings of studies in related field (Saks & Faigman, 2008; Schiffer, 2009). Hence, some recommendation should be proposed since, until this period of time, this kind of research has yet to be done.

#### 1.4 Research Objectives

The focus of this research is to recommend for the integration of forensic science fundamentals and *al-qarīnah* towards achieving *maqāṣid al-sharī'ah*. With such an objective in mind, the research aims:

- i. To identify forensic science elements in Muslim scholars' view on the admissibility of *al-qarīnah* in Islam;
- ii. To analyse the relationship of forensic science elements with *maqāṣid al-sharī'ah* from its transferability through reported forensic science cases;
- iii. To analyse fundamental framework of forensics in Islam based on forensics elements found in scholars' view on the admissibility of *al-qarīnah* in Islam;
- iv. To propose for a fundamental recommendation of forensic science as integration with *al-qarīnah* towards achieving *maqāṣid al-sharī'ah*.

#### 1.5 Research Questions

As for this study, in the end of research, findings will manage to elaborate on how could forensic science fundamentals achieve *maqāṣid al-sharī'ah* and answer on:

- i. What are the forensic science elements in Muslim scholars' view on the admissibility of *al-qarīnah* in Islam?
- ii. What are the relationship of forensic science elements with *maqāṣid al-sharī'ah* through the reported forensic cases?
- iii. What are the components of forensics fundamental framework based on forensic science elements found in scholars' view on the admissibility of *al-qarīnah* in Islam?
- v. How would the forensic science fundamentals be recommended as an integration with *al-qarīnah* in achieving *maqāṣid al-sharī'ah*?

## 1.6 Research Scope

Researcher aware that forensic science is too broad in scope. By limiting the scope of this study, this research will be in focus and the findings will be concise and compact. The scope of forensic science in this study is viewed from the fundamentals aspect which covers the philosophical part of forensic science such as the foundation, principles, and the historical area. Researcher also has limited the scope to the discussion on the scholars' view in the admissibility of *al-qarīnah* as this is the point that makes forensic science being admissible in Islamic law. Moreover, statute and reviews also being limited to Federal State of Wilayah Persekutuan as it is *pari materia* to shariah legislation in other states in Malaysia (Najibah, 2012). The reviews of forensic science practice in this study is also limited to *Jabatan Agama Islam Wilayah Persekutuan* (Department of Federal Territory of Islamic Affairs) – JAWI. As from the methodological aspects, data sources included various Qur'anic verses and hadith (as explained in methodology section) but not limited to *fiqh* sources. Regarding the discussion of *maqāsid al-sharī'ah* in this study, the scope has included but not limited to *maqāsid al-sharī'ah khaṣṣah* focussed on 'uqūbāt.

## 1.7 Original Contributions of This Study

This thesis has three prominent contributions: methodological, theoretical, and practical. As for the methodological implication, this study suggests some new analytical technique in the field of Islamic research. The combination of computerised and manual coding processes towards two different languages of manuscripts namely; Arabic and English languages deliberately ensure the smoothness of coding process. In fact, that this kind of combination gives a clearer picture of the searched codes. On the theoretical front, this study contributes to the literature of integration between science and religion in general and the connection between forensic science and *maqāsid al-sharī'ah* specifically, through the integration of *al-qarīnah* and forensic

science. This research claims that the integration between sciences and Islamic law has been established as the forensics elements do exist in religious manuscripts of Islamic law. It also stressed on the role of forensics in the preservation of *al-darūriyyāt al-khamsah* inductively and deductively from case studies presented. Furthermore, this study also highlights the role of *al-qarīnah* in realising *maqāṣid al-sharī'ah*. Interestingly this research adds to the literature of forensics that there is a blueprint to recognised forensics as *al-qarīnah* in the preservation of *al-darūriyyāt al-khamsah*. Meanwhile, on the practical point of view, this research emphasises that the forensics and Islamic law must be in synchronised with each other. The negligence of integrating these two fields will negatively influence both sides.

This research has also give benefits to the field of *maqāṣid al-sharī'ah* in a contribution to open a new topic of discussion. Hence, *maqāṣidī scholars* will later make further elaborations related on this topic. As for any Islamic institutions that intend to set a firm or establishing the guidance of Islamic practices and ethics in forensic science, there are some implications that can be referred at the end of the research. It is up to the institutions to evaluate the findings whether it is suitable to be taken for further actions or not. As for scientists, Muslim forensic scientists especially can gain new perspectives on their job and thus will contribute to an Islamic model of profession and practice. For the benefits of future researchers, this study guides them to put forward for more research in this field of study as this is a fast-flowing research area. By recognising the role and the importance of forensic science in Islam will lead to further extensive research. This study is also a pioneer to other researchers to explore more in the field of integration between forensic science, *al-qarīnah*, and *maqāṣid al-sharī'ah*.

## **1.8 Operational Definition**

Some of the basic terminologies that are related to this study are mentioned in this section. These elaborations aim to guide the study through definite terms and prevent any misinterpretation of the understanding to readers.

### **1.8.1 Forensic Science Fundamentals**

‘Forensic science’ terminology should be read together as a noun which described as the application of scientific techniques to legal investigations and science in the service of the law (Embar-Seddom & Pass, 2009: 8). Researcher also used the term ‘forensics’ to refer to forensic science in this study for the ease of reading and writing. As for this study, ‘the forensic science fundamentals’ is a phrase that refers to the primary rules, principles, base, and core of forensic science (Houck & Siegel, 2010). The word ‘fundamentals’ should be read together with ‘forensic science’ for a complete terminology understanding of this study. This terminology includes but not limited to scientific and non-scientific aspects of forensic science that consists of six aspects namely; criminal justice, analytical tools, biological, chemical, physical, and legal aspects of forensic science. Moreover, this study also used the terminology of ‘forensic science elements’ that refers to the rudiments and component parts of forensic science application.

### **1.8.2 *Al-Qarīnah* (Circumstantial Evidence)**

In fact, there is a lot of argumentation in defining *al-qarīnah*, this study used the definition given by Ibn Nujaym (n.d.), that is any sign, proof or evidence which is



circumstantially corroborating towards relevant fact or presumptive proof to reach to the certain point of a case. In this study, the definition also includes *al-qarīnah* which related to every aspect of forensic science that can be assimilated into the admissibility of *al-qarīnah* in evidencing cases.

### 1.8.3 *Maqāṣid al-Sharī'ah* (The Objectives of Islamic Law)

This research refers *maqāṣid al-sharī'ah* as the legitimate purposes or the objectives of Islamic law and used a combination of the definition given by al-Qarrāfi (1994: 5/478), al-Raysūni (2006: 67), and 'Auda (2010: 1). It is the 'goals of the shariah that aims and bridges between the law and today's conceptions of human rights, development, and civilisation which linked with preserving *maṣlaḥah* and eliminating *mafsadah* concept, that need to be obtained for the benefit of human being'. This definition also includes but not limited to the definition of *al-darūriyyāt al-khamsah* that can be defined as the preservation of five essential values; religion, life, intellect, dignity/lineage, and property.

## 1.9 Summary

All in all, this chapter deals with the introductory part of this study, which consists background and statement of problem, objectives, significance, and scope of the study. Four issues have been highlighted in the background of studies that built the problem statements. This study also aims to achieve and answer four research objectives and questions. Under a specific scope, this study also had been narrowed into several limitations. In fact, this study also originally contributes to the three prominent aspects. Operational definition has been explained through the final section. Hopefully, the elaboration in this chapter can give an overall view of the study.

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