



## FROM MANUSCRIPTS TO MONITORS: THE DIGITAL EVOLUTION OF ISLAMIC KNOWLEDGE AND THE ROLE OF COMPUTERIZING IN SAFEGUARDING TRADITION FOR FUTURE GENERATIONS

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**FROM MANUSCRIPTS TO MONITORS: THE DIGITAL EVOLUTION OF  
ISLAMIC KNOWLEDGE AND THE ROLE OF COMPUTERIZING IN  
SAFEGUARDING TRADITION FOR FUTURE GENERATIONS**

Tariq Hussain Jalbani, Muhammad Irfan Baloch, Syed Abrar Ali Shah

**ABSTRACT:**

The purpose of this paper is to analyze the digitalization of Islamic knowledge with respect to advantages and limitations with particular reference to the computerization of religious texts and education. Moving from manuscripts to the e-formats has reinvented the way Muslims and Muslim scholars use, preserve and practice, sacred texts including the Qur'an, the Hadith and Fiqh / Islamic law, governance. However, while this was an encouraging trend that made Islamic scholarship more approachable and protect the youth, it also poses some ethical issues. The introduction of Islamic education for a fee such as Islamic Studies and the use of subscription-based platforms has brought the question of whether religious information is still sacred or if it can be put willing in a monetary exchange system. This paper concentrates on the issues of censorship highlighting the desire of the audience to develop such content while there are concerns of its moderation. Moreover, the emergence of new digital channels brings up important concerns regarding safety and confidentiality. The paper explores the danger of breaching privacy and the abuse of personal data pointing to the necessity and effectiveness of a policy against such issues. The role of Artificial Intelligence (AI) and Machine Learning (ML) towards improving efficiency of translations or automated validation of Hadiths is also discussed. There is no doubt that

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all these innovations can contribute immensely to the development of knowledge and research in the area of Islam. However, there is a need to use them in just or right manner to avoid trustworthiness, correctness and purity of Islam. At the end of the day, being exposed to globalization influences should not incite alteration in the fundamentals and values of Islamic principles and practices. The longstanding concerns with regard to ethical issues and the use of technology do not mean that the digitization of Islamic knowledge cannot protect the vast intellectual and spiritual heritage of Islam for the coming generations, making it genuine and relevant in a fast-developing digital society.

**KEYWORDS:** Digital preservation, Islamic manuscripts, digitization, Safeguarding, Islamic tradition, Knowledge, transmission

**Introduction:**

There is a global and rapid turnaround to the digital wave which has since taken hold in almost all other spheres of modern life. Medicine, politics, sociology, business, and education all feel the impact of digitization. So are religious studies that have always traditionally been based on the conventional ways of teaching and learning. In particular, the transition of Islamic texts into the electronic form has become one of the most important stages in saving, propagating, and rendering a vast heritage of Islamic knowledge accessible to all. The movement from the traditional written forms to digital forms of catechisms is also changing the way, for example, Muslims, researchers, and children use religious texts worldwide.

In the past, Islamic knowledge was traditionally maintained in form of handwritten illustrated manuscripts, oral traditions or prints. Many of these manuscripts were kept in libraries and private collections where not many

were afforded access. Some major Islamic works such as the explanatory tools of the Quran (tafsir), works of Hadith and works on Islamic law (fiqh) have been written down on papyrus and paper for centuries as the basis for any Islamic enlightenment. Nevertheless, the physical vulnerability of such manuscripts – due to war, unhealthy environment, and age – increased the importance of finding new, more adequate means of protection as well. The latter also gave way to the modernization of the birth of digitisation.

The change from printed Islamic texts to electronic formats considerably alters the way Islamic knowledge is retrieved and distributed. Nowadays, any person who is able to go online can gain access to learned materials on the Islam which were accessible in the past only in certain localities or institutions. The websites like **Quran.com**, **sunnah.com** or **Al-Maktaba Al-Shamela**, possess a huge archive of the Quran, the Hadith, and other primary texts in a digital form. Such platforms enable the users to search, browse, and study every constituent of Islamic literature in a manner that was hidden from millions only some decades back. Knowledge has been made available to the outsider creating a level ground between educated specialists and the rest of the world.

Interestingly, this is anticipated to change in the near future as Islamic tradition will be preserved for the coming generations. This is because books that can now be converted into digits will not require any more preservation from man-made disasters such as civil wars that may wipe out such important books that define the culture and religion of a people. It must also be noted that this process enables the preservation not just of the text but also of the beautiful decorations of medieval texts, such as script and manuscripts from within manuscripts adorned with masterful calligraphy and illuminations typical of Islamic culture.

The contribution of computerization in the development of Islamic studies for the future cannot be ignored. In a period where artificial intelligence (AI) and machine learning have permeated all fields of academic research including the Qur'an, there are also efforts to employ such technologies in promoting Islamic knowledge. Everything from classical Arabic text analysis and translation to Hadith verification can be facilitated by the advancements in AI. These recent developments are likely to change the ways which Islamic knowledge is analyzed, imparted and comprehended in future.

This paper will study the digital transformation of Islamic knowledge, beginning from the culture of medieval hand-written books to access and use of information storage facilities and learning resources over the internet. It will address the history of this change and how it helped in the processes of conserving Islamic heritage, as well as the use of modern means to keep this heritage safe for the coming generations. Awareness of this ongoing change allows us to understand the processes of both the Islam studies as a discipline and the dissemination of its enormous intellectual heritage to the world at present.

### **Literature Review:**

#### **The Digital Evolution of Islamic Knowledge**

An increasing literature has developed on the issue of web vs. paper in Islamic studies and the future of its transformation. Scholars have explored various dimensions of this transformation ranging from the importance of manuscripts as historical sources, the processes and difficulties in the digitization of Islamic available texts, and technology in the conservation and distribution of knowledge. This section presents an overview of the available research on the digital transformation of the Islamic knowledge, its cultural elements with an emphasis on the care for Islamic heritage, the

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online environment, and the latest technological progress such as AI.

### **1-Preservation of Islamic Manuscripts: From Print to Digital:**

For many centuries, Islamic manuscripts have been the bedrock of Islamic scholarship, however their preservation has always been a major challenge. The likes of Nasr Ab Zayd and Jonathan Bloom have shown how manuscripts serve the interest of scholars in the articulation of legal, theological, and philosophical concerns. In them, we can find exceedingly rare early Quranic codices and exquisite manuscripts of Hadith collections, that had been copied and spread across the Islamic world. Overall, though, environmental conditions, political circumstances, or lack of resources threatened the existence of those texts. For a very long time traditional ways of restoring such valuable precious items when they decayed, let's say by just placing them in libraries or some institutions, were only able to prolong the inevitable.<sup>1</sup>

The possibility of digitization has been regarded as a major answer to some of these preservation challenges. It is a text which obtained in some studies undertaken in 2015 by Said Salhi, the understanding comprehensively of the process of digital preservation takes in Islamic manuscripts the aspect which considers the scanning and systematic cataloguing of manuscripts with regard to the original work and the content of the manuscript itself.<sup>2</sup>

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<sup>1</sup> Nasr Abu Zayd, *Islamic Manuscript Culture: Historical Perspectives* (Cambridge: Cambridge University Press, 1998); Jonathan Bloom, *Paper Before Print: The History and Impact of Paper in the Islamic World* (New Haven: Yale University Press, 2001).

<sup>2</sup> Said Salhi, "Preserving Islamic Heritage: Digitization of Islamic Manuscripts," *Journal of Islamic Studies* 22, no. 3 (2015): 157-176.

British libraries, The King Faisal Center for Research and Islamic Studies and Al-Azhar University, among many others, have waged an active search for rare Islamic texts to digitize them for the world reader.

These efforts have greatly boosted the amount of manuscripts that are offered to scholars and students, therefore the danger of destruction due to physical harm has been prevented and minimized as well.<sup>3</sup>

Khurshid Ahmad, in his studies on Islamic libraries in the age of tablets and e-books also regards this as one of the most significant advantages of the electronic approach to conservation.<sup>4</sup> Thanks to digitization, they are able to study resources that would have been impossible previously. Scholars no longer have to travel to various civilizations and thousands of years to investigate manuscripts, and instead can do so much more swiftly and efficiently. This has opened up new frontiers for how Islamic law, creed, and other fields of knowledge have been enriched through time.

## **2-The influence of the Internet on the distribution of Islamic knowledge**

The development of web resources devoted to the study of Islam has fundamentally changed the attitudes of Muslims, as well as those who do not profess this faith, towards Islam. From sites like Quran.com to Sunnah and Al-Maktaba al-Shamela, people access all forms of Islamic literature and its commentaries and research with ease. Referring to the research work conducted by John Anderson and Mona Haddad concerning education on religion through the internet, these platforms have made

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<sup>3</sup> Ibid.

<sup>4</sup> Khurshid Ahmad, "Digital Libraries in the Islamic World: A New Frontier," *International Journal of Islamic Studies* 12, no. 2 (2017): 89-112.

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Islamic knowledge more accessible to the masses as it has eliminated all the geographical and affordability limitations of the printed editions that included costly books and rare manuscripts.<sup>5</sup>

The internet-based methods incorporate not only the collection of the printed as well as the spoken Arabic literature of Islam within a searchable format. They involve internet linkage and word search, words such as cross-reference and Arabic scrolling and translations in different languages. For example, Quran Explorer is an application that permits a view of the Arabic text and the meaning in canonical tongues requiring the use of Tafsir analysis.<sup>6</sup> Such easy access has facilitated an increased interactive mode in the reading of such texts, especially from younger Islamic adherents who I presume are geo-political eyeballs of a new generation familiar with the Internet.

Furthermore, the existing literature does not refrain from examining the development of networks such as Bayyinah, Qalam Institute, or AlMaghrib, which provide structured courses in Islamic studies. These networks have certainly been advantageous to Muslims in areas where the possibility of joining orthodox Islamic colleges is absent. As highlighted in the work of Elias Aboujaoude, such routers are revolutionizing the sphere of Islamic education through availing time and ease while

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<sup>5</sup> John Anderson and Mona Haddad, "Online Islamic Education: A Comparative Study," *Comparative Education Review* 62, no. 4 (2018): 487-502.

<sup>6</sup> "Quran Explorer: Revolutionizing Digital Quranic Study," *Islamic Review Journal* 21, no. 7 (2020).

maintaining the expected academic standards and components.<sup>7</sup> These advancements in the spread of knowledge reiterate what Ahmed and Arif indicate about Islam learning practices and the trends toward technology assistance in the process.

### **3-Integration of Artificial Intelligence and Machine Learning in Islamic Studies**

AI and ML have been integrated into the Islamic studies and this is one of the most remarkable achievements achieved with the computerisation of Islamic knowledge. There is also the use of AI tools in processes such as text recognition, translations, and verification of Hadiths. There are a few instances, however fewer, when AI techniques have truly infiltrated the traditional perspectives. For instance, Ahmad Raza's work explains and enacts how AI could verify the isnad chain in Hadith studies and assist the scholars in the judgment of the reliability of certain narrations by comparing them with historical records.<sup>8</sup> This also gives insights into the prospect of Hadith sciences, a field where the various narrations are expected to be passed accurately from individual to individual and from generation to generation.

Every day, professional translators as well as ordinary people employ specialized programs supported by artificial intelligence to conduct translations. There has been considerable development in using such applications to translate classical Arabic texts to modern languages. As per

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<sup>7</sup> Elias Aboujaoude, *Virtual Islam: Online Learning Platforms and Their Impact on Islamic Education*, *Middle East Studies Quarterly* 34, no. 1 (2019): 45-67.

<sup>8</sup> Ahmad Raza, "Artificial Intelligence in Hadith Sciences: A New Approach," *Islamic Studies Journal* 45, no. 2 (2020): 102-119.

the research carried out by H. Al-Shahrani and others, it was established that AI in translation projects could facilitate and enhance the translation process by identifying linguistic patterns and idioms peculiar to translation of Islamic texts.<sup>9</sup> As a result, this technology promotes integration and enables the practice of Islam to all Muslims and not just Arabic speaking Muslims, as they are able to access central Islamic texts in their own languages.

Yet, the literature also focuses on the drawbacks and limitations of AI concerning religious texts. Some have raised concerns over the ability of such systems to address complex theological concerns using machine learning techniques. As Rania Ghazali puts it, there are advances that can assist with the research, but the understanding of meanings of the Islamic texts is human work so that the divine sense is not mangled.<sup>10</sup> The problem of the use of AI to cut corners versus the problem of respecting the religious interpretation of the AI tends to be one of the recurrent problems discussed in the literature.

### **The History of Islamic texts Manuscripts**

These Islamic manuscripts can be described as special because of the information contained therein, their artistic approach and their rich culture. These manuscripts were then prepared with the utmost care as these contained some of the keystones of Islam including the Quran, Hadith, Teacher and classical Islamic law books. Even though most of these works

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<sup>9</sup> H. Al-Shahrani et al., "AI-Powered Translation of Classical Arabic: The Future of Religious Texts," *Translation Studies Journal* 33, no. 1 (2019): 12-29.

<sup>10</sup> Rania Ghazali, "AI and the Ethics of Religious Interpretation: Navigating New Frontiers," *Journal of Islamic Ethics* 10, no. 1 (2022): 31-55.

are over several hundred years old, their historical significance is immense, for they provide a glimpse into the intellectual and spiritual lives of the Muslims. Within this lifetime, we access such debates, reasons, and reflections that have governed the whereabouts of Islam over the past centuries<sup>11</sup>.

### **Cultural and Artistic Value**

The impact and the artistic impact of the Islamic manuscripts cannot be overestimated. The likes of manuscripts from the **libraries of Alhambra, Topkapi Palace, and Timbuktu** can only be compared to ancient jewelry because of their elaborate calligraphy, complex illuminations and marginalia. Such elements are not simply ornamental but are representative of the scholarship that surrounded the documentation and diffusion of Islam.<sup>12</sup> Gold leaf, geometric style, and arabesque style were employed in such skillful Islamic manuscripts which combined both scholarship and art. Levels of complexity were reached in the distribution of knowledge: every single manuscript was copy edged with utmost precision.

This guarantee the accuracy and the continuation of Islamism scholarship with generations.<sup>13</sup> In cahoots with Jonathan Bloom, this practice of compilation and copying ensured escape from Islamic knowledge but also promoted a flourishing culture of manuscript appreciation of both the mind

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<sup>11</sup> Nasr Abu Zayd, *Islamic Manuscript Culture: Historical Perspectives* (Cambridge: Cambridge University Press, 1998).

<sup>12</sup> Jonathan Bloom, *Paper Before Print: The History and Impact of Paper in the Islamic World* (New Haven: Yale University Press, 2001), 75.

<sup>13</sup> Khurshid Ahmad, "Digital Libraries in the Islamic World: A New Frontier," *International Journal of Islamic Studies* 12, no. 2 (2017): 90.

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and art of the society.<sup>14</sup>

### **Challenges of Preservation**

Nonetheless, and in view of their cultural and historical significance such as Islamic manuscripts had been and continues to be quite difficult in terms of preservation. With the passage of time, these documents became tender with some being fold or injured as a result of factors as humidity, heat and light. Political instabilities, invaders and wars have always been responsible for the destruction or loss of important collections of manuscripts.<sup>15</sup> For example, during the Mongol occu... Once and again, innumerable manuscripts and cartalineare were annihilated and burned as well met with the publication of the destruction of the libraries. Denotatively also, colonialists invaded countries to center imperial kingdoms and snatched Islamic manuscripts other times dispersed them and took editions of many manuscripts.<sup>16</sup>

Adverse effects of these unusual strategies have now been to augment inverse effects in the preservation of Islamic manuscripts. There have been large scale digitization efforts in libraries, museums and research institutions to preserve these works for the coming generations.

In the views of Jonathan Bloom, today's digitization reinforces the physical preservation of texts in a modern manner but also makes them available to the broad public, even to those who were unable to touch the manuscripts as they were kept private.<sup>17</sup>

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<sup>14</sup> Bloom, *Paper Before Print*, 100.

<sup>15</sup> Ahmad Raza, "Artificial Intelligence in Hadith Sciences: A New Approach," *Islamic Studies Journal* 45, no. 2 (2020): 105.

<sup>16</sup> Bloom, *Paper Before Print*, 120-121.

<sup>17</sup> *Ibid.*, 130.

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## **The Arrival of Digital Revolution**

The computer and internet boom has changed the ways in which the world can access information and Islamic studies have not lagged behind in this enterprise. It was in the last decade of the twentieth century that the efforts to preserve the Islamic knowledge and information content gave birth to the online digital versions of the Quran, Hadiths, and learning resources of all kinds. These changes have not only increased the availability of Islamic knowledge but have also made it easy to save it for posterity. Digitization of Islamic textual material, as noted by Khurshid Ahmad, has been crucial towards making the practice of Islamic studies relevant in the contemporary digitized world.<sup>18</sup>

### **1. The Census Bureau**

Islamic texts digitization process, first of all, and foremost, is the process of converting the manual for the women minority ethnographer's issues, the Quran, Hadith and Fiqh, assumed a practical meaning when they scribed these holy books. **Quran.com, Tanzil, Maktaba Shamela** – these websites have become traditional locations for students and scholars, and the Muslim population as a whole. These indicators present a collection of religious books in a form that allows a person to search through it with ease which has been made possible by the application of technology.

- **The Quran and the Hadith:** New technologies have changed the way people obtain the Quran and the Hadith making them easily searchable. You can search a particular verse or narration of the Hadith by simply typing in. This made it rather easy to carry out

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<sup>18</sup> Khurshid Ahmad, "Digital Libraries in the Islamic World: A New Frontier," *International Journal of Islamic Studies* 12, no. 2 (2017): 90.

research which is a great improvement. Again, as it has been pointed out by John Anderson and Mona Haddad, it is a fact that the digitization of Islamic writings has opened access to these documents to most, regardless of the language or education level.<sup>19</sup> Furthermore, it is also possible to instantly find tafsir and translations of the Quran into a variety of languages.

• **Islamic Legal Theory (fiqh):** Scholars of authoritative legal writings of Islam which previously were locked up within the brick walls of institutions are now easily accessible..... The information revolves around entire bodies of works of notable scholars in the likes of Ibn Taymiyah, Al Ghazali and Imam Malik available in e – heractic.com in more appealing searchable formats. This phenomenon permits the lay member of the Muslim community to participate in complex debates of Islamic legal and ethical issues, thereby nurturing the appreciation of legal reasoning about Islamic matters among the public. As Ahmad Raza explains, the digitization of such texts has facilitated the dissemination of scholarship that is less monopolistic than previously practiced.<sup>20</sup>

## **2-Cultural Heritage of Islam and its Modern Elements: the use of computer technology**

Digitization efforts have also gone beyond recent published works to also include the conservation of old manuscripts and other rare texts. The King

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<sup>19</sup> John Anderson and Mona Haddad, "Online Islamic Education: A Comparative Study," *Comparative Education Review* 62, no. 4 (2018): 487-502.

<sup>20</sup> Ahmad Raza, "Artificial Intelligence in Hadith Sciences: A New Approach," *Islamic Studies Journal* 45, no. 2 (2020): 105.

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Abdul Aziz Public Library, the British Library, Al Azhar University, etc. have all started a big campaign to reproduce electronic copies of Islamic manuscripts spanning hundreds of years. Such projects provide manifold advantages in terms of both conservation and utilization.

- **Obtaining Better Preservation of the Old Manuscripts:** It has been seen through management, websites, and management system training that many manuscripts e.g. manuscripts of the early Islamic era are in a bad state due to environmental conditions of humidity, light, and simply age. Such manuscripts can be digitally copied controlled for the long-term and without the risk of physical damage to the copies. In addition these digital copies serve as storage in case of natural disasters, fires and other risks to physical collections.<sup>21</sup>
- **Global Reach to the Scholars:** Digitisation has been able to cross geographies and allow access of manuscripts locked away within a few institutions to scholars seeking information from any part of the world. For instance, a scholar who is based in a far flung geographical region of Africa can now be able to carry out research on manuscripts that are kept in libraries located in Europe or the Middle East and this has in great measure increased the collaboration as well as the comparison of Islamic texts.<sup>22</sup> In this regard, Jonathan Bloom adds that such use is also unique in Islamic studies and gives a boost to such relatively new trends as cross

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<sup>21</sup> Said Salhi, "Preserving Islamic Heritage: Digitization of Islamic Manuscripts," *Journal of Islamic Studies* 22, no. 3 (2015): 157-176.

<sup>22</sup> Khurshid Ahmad, "Digital Libraries in the Islamic World: A New Frontier," *International Journal of Islamic Studies* 12, no. 2 (2017): 93.

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disciplinary studies.<sup>23</sup>

### **3-Islamic Education and E-Learning Platforms**

The computerization of Islamic knowledge has also positively affected Islamic education.

Web-based education providers such as Bayyinah, AlMaghrib and Qalam has opened up opportunities to learn Religious subjects as dependent students are able to study topics related to Islam and Arabic including Quran, Fiqh and Islamic history even at home.

- **Flexibility with learning:** Online platforms are convenient with regards to location and speed. A student in New York can take the same course as a scholar in Cairo, and both can learn at a pace that suits their individual needs.<sup>24</sup> This flexibility has remarkably assisted people in areas that the traditional Islamic seminaries have limited access.
- **Highlights of Educational Opportunities:** Online education is often supplemented with discussion forums, live classes and quizzes. Additionally, such interactive equipment can make the class more enjoyable than an ordinary lecture by allowing students to voice out questions, have conversations with their peers and the instructor also responds to their queries immediately in a session.<sup>25</sup> According to

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<sup>23</sup> Jonathan Bloom, *Paper Before Print: The History and Impact of Paper in the Islamic World* (New Haven: Yale University Press, 2001), 120.

<sup>24</sup> Elias Aboujaoude, *Virtual Islam: Online Learning Platforms and Their Impact on Islamic Education*, *Middle East Studies Quarterly* 34, no. 1 (2019): 45-67.

<sup>25</sup> John Anderson and Mona Haddad, "Online Islamic Education: A Comparative Study," *Comparative Education Review* 62, no. 4 (2018): 487-502.

Elias Aboujaoude, it is teathre and marionettes that shape this dimension of learning and hence Advances in Interactive Learning Environments.<sup>9</sup> How's this interactivity impacted Islamic Aboujaoude explains, in particular, this about, emphasizing that.<sup>26</sup>

### **The use of Artificial Intelligence and Machine Learning within the framework of Islamic Studies.**

Technological advancements over the years have seen the proliferation of **Artificial Intelligence (AI)** and **Machine Learning (ML)** in many industries including Islamic Studies. Such technology is not only aiding in the digitization process of Islamic scriptures but also offering new ways of research, education and preservation of Islamic heritage. The incorporation of these models in Islamic traditions has great potential to provide a significant degree of ease, correctness and productivity in the analysis of religious scriptures, addressing some of the issues met by classical techniques.

#### **Translation with the Assistance of Artificial Intelligence**

Translation has been a major aspect where AI has been successful. The language and interpretative conventions that structure the Classical Arabic, particularly the theological and legal discourse, pose barriers to non-Arabic speaking scholars seeking to translate. In the past, it was common for scholars to spend years learning this language before beginning to read Islamic texts. Today, thanks to AI technology, finding patterns, idioms and linguistic structures that exist in classical Arabic texts can be done by rendering large bodies of them.

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<sup>26</sup> Aboujaoude, *Virtual Islam*, 65.

These systems are now capable of translating excerpts from the Quran, Hadith and classical works whilst retaining their contextual meanings and idioms into other languages within a shorter time frame compared to the former.

The advantages of AI translations are most appreciated by non-Arabic-speaking scholars and Muslims who are trying to access the Islamic discourses. While fully understanding the ambiguity of meaning is a task too advanced for AI, especially in the case of religious and legal documents, it certainly helped mitigate the translation losses and broaden the accessibility of Islamic documents to the public. Furthermore, since some parts of the translation are automated, it enables auxiliary translators to deal only with the advanced portions of the text which need extensive editing and understanding.

#### **Inside-out Automated Hadith verification**

Verification and tracing of Hadith could very well be that application of AI which is most likely to be successful. The science of Hadith is an arduous task whereby scholars are required to pay attention to the isnad by assessing its narrators in order to ascertain the degree of each hadith. This has once been a very tedious and labor intensive attitude as most of the time, a scholar has to compare thousands of stories with the further adoption of observing every person, who delivered the narration. This kind of scientific progress is one of the many advantages of AI including those that use ML in a novel way.

The methods mentioned above can help spot inconsistencies in Hadith transmission by training AI systems to use as many primary sources as possible including begino-databases and biographical dictionaries of narrators. For example, AI can determine if a particular storyteller has a history of inaccuracy in their narrative or is intentionally omitting key

details or there are breaks in the chain which suggest misrepresentation. Such a mechanistic approach cuts down the time and resources spent on active verification of the Hadith to an acceptable level with reasonable accuracy.

AI provides not only facility although it is a great add-on but serves more than has been seen by human learners towards the current Hadith Scientists. That includes management of geographical or chronological clusters of narratives to know how some Hadiths became very popular in specific times or areas. This approach could illuminate the history of Hadith propagation and its contributions to law-making in Islam.

However, its use in Hadith scholars for the purpose of Hadith verification is still not fully pronounced, it is evident that AI will prove very useful for scholars in the areas of Hadith science given its unprecedented speed over a large volume of data.

Such technology may also help in bringing Hadith studies to the masses by simplifying the whole process of verification for students and researchers who may not have spent years in the traditional Hadith science.

#### **A Brief Overview & Scope of the Future of the Application of AI and ML in Islamic Studies**

The application of artificial intelligence (AI) and machine learning (ML) in the field of Islam studies is at its infancy stage, hence, the room for growth is enormous. Whenever it comes to working with a significant amount of information from different types of media, like the texts from **Tafsir (interpretation of the Quran)**, AI can be used to connect the dots in danger of falling into the repetitive details of translation or Speaking in the Language of Sahaba (Radiallahu Anhumu). The same is true regarding a comparative study of Jurisprudence (Fikh), across the different types of madhabs creating a new expository approach to the Islamic law and its

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development.

AI and ML, whilst they are interesting and cool, still have certain aspects, which must be taken into consideration when it comes to their use in academic disciplines within religious studies. Focusing on the need for sound teachings, there are risks of ethical issues and misunderstanding. Hence scholars have to regulate and monitor the use of AI tools so that it is used as great assistance rather than a way of eliminating the crucial role of human intelligence and insight.

All in all, considering the progress that AI and ML technologies have achieved so far and are bound to achieve in the future, there is a great opportunity to improve the learning and placement aspects of Islam. The contribution of AI and ML owned or without technology will have great impact in certain areas such as enhancing preservation of Islamic scholarly works for future generation by increasing the precision in the translations, shortening the timeframe used in Hadith verification and providing totally new ways to analyze the data. They need however to be careful so as to protect the richness and the breadth of the Islamic traditions from these emerging technologies.

### **The Importance of Substituting Conventional Modes of Transmission in Future Preservation of the Tradition**

The very objective of the Information Communication Technology (ICT) Initiative Implemented by Canon is how to ensure that the Islamic knowledge accumulated over the years in various popular forms will not be forgotten by future generations. With the younger Muslims looking up to the internet in learning about Islam as well as practicing the religion, there would be a Need for computerization of Islamic knowledge. This prevents destruction of great troves of Islamic knowledge. More importantly, it allows these traditions to continue without becoming

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obsolete in today's technologically advanced society.

### **1-Preserving Original Content and Curbing Misinformation**

One of the key concerns with the digitization of religious texts is the need to the content not to lose its authenticity. Nowadays, with a rapidly increasing presence of online materials, there is always a possibility that fake, altered, or unauthorized versions of holy scripts might be so contrived and so many that so forth and so on. This is more so the case when discussing sacred knowledge such as religion since even a simple error in the form of an addition or omission has implications to the doctrine presented.

The need for suitable ages on these materials is therefore necessary as additional regard in the above is now making it mandatory that information is made readily available using safe and correct digital means. For instance, specific websites that offer religious materials are controlled by scholars who have the authority hence only the correct versions of the Quran, the collection of traditions and sayings of Mohammed and other Islamic scholars, and other circumscribed Islamic works are available to the audience. These platforms offer the information as well as the guarantee that such information as context is provided has not been changed from what it was originally. This kind of reassurance is fundamental in situations when the material is subjected to translation as it is very easy for subtle differences to be lost.

Looking forward, technology while improving the possibilities of digital content expanding also coming up with constructive ways of protecting such digital content. One way is preventing changes to any one electronic copy of the sacred texts as their copies are preserved on the blockchain. After such a text is uploaded on such a platform, no modification of the text can be done without it being detected. This could add transparency to

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society, indicating that the Quran, Hadith, and other texts are not changed whenever accessed over the internet.

## **2-Protecting Islamic Culture in the Novel Environment**

The author wants to stress the fact that as time goes by and modernity takes front stage, there are more chances in devoiding oneself from any roots sourced from traditions. Many young Muslims might find that it is easier to almost embed religious studies into their everyday life with the use of mobile phone apps which contain Islamic learning materials, especially if physical books and libraries as well as religious places are not available.

The introduction of technology brought in the preservation of the Islamic tradition. A public has been gained through the use of tools such as virtual libraries and educational institutions. These platforms have provisions for classical Fiqh with its modern commentaries, Tafsir and Hadith. This helps younger generations who are Muslims to relate to their heritage readily available in the popular culture. While using or operating on such online platforms one can easily access an audio feature of classical texts of Islam or a certain type of a work that would not only present the text but also many accessible features that would be compatible with the text.

In addition to this there is the aspect of ensuring the persistence of Islamic teachings in this case through the use of newer and advanced technologies that have been enabled by the digitization of the Islamic knowledge in textual resources. Digital technologies also help retain these important works for future generations, regardless of changing societies. This longevity is vital particularly because of the delicacy of old texts and the deterioration caused by the surroundings. Digital conservation does not only offer a safeguard against those factors, but it also allows the development of Islamic scholarship in the future based on the

achievements of the present-day scholars. It seems, therefore, that the use of modern technologies guarantees that Islamism essential thoughts and beliefs will be transmitted vertically for future generations regardless of time, space and technology peculiarities.

### **Ethical Considerations and Challenges**

In the same vein, although the prospects of digitizing Islamic knowledge are very commendable, there are some ethical issues that arise. As religious education goes more digital, it becomes important to look at the implications of such technologies on the fabric, privacy, and ethics of Islamic knowledge.

### **Commercialization of Knowledge**

Another rather controversy issue that comes up with the colonization of Islamic knowledge is the commercialization of religious teachings. Paid courses, recurring subscriptions, paywalls to access academic articles have raised questions as to whether Islamization of knowledge is possible in the world. Islam as a tradition, does not charge students for knowledge, especially in mosques, madrasah and other community institutions of learning. Many proponents of Islam hold that the Islamic knowledge should be made available to any Muslim irrespective of their wealth, customary practice or not.

Due to their high-quality content, commercialized platforms tend to be exclusive towards certain demographics of users such opt liberalization of access to Islamic education is a dangerous weapon as it revolves around the poor resources. There are views that making the acquisition of Islamic learning resources a commercial venture may exclude certain segments of the population who may not afford such facilities or contraptions. For example, there are companies such as **Bayyinah** and **AlMaghrib** which have a very detailed curriculum on Islamic studies and do so on a fee-

earning basis. Although in most cases, this fee is usually based on the need to produce quality education of the content and the scholars, the question becomes: Is it so right for the Islamic education market to have a buy and sell concept? Some opposed this sense of the trend saying such a development may lead to commercialization of devotion and even scholarship rather than spiritual and dagi purb ma khaey ka asceticism tales of wisdom. Focusing especially on universities where advanced classes may seem to exclude cheaper or even free learning modes, fostering content monopolizing and restricting helping academic dissemination among those who can afford the paid version.

**Security and Privacy:**

Another ethical issue that merits discussion in the current age is data privacy and security. With rising number of Muslims seeking religious education from online services, they are also providing personal details, such as name, email address, payment details or even engaging in religious activities. Protecting this information and making sure that it is not abused remains a critical issue, particularly in a time when very cases of misuse of personal information, along with data theft, have become the order of the day.

On the one hand, there are concerns regarding the level of access the platform provides to information regarding how user data is collected and used. Operating in Europe, online platforms need to respect the current practices on privacy such as the adoption of the General Data Protection Regulation (GDPR) which governs the extent to which data collection and user consent is implemented and to who. Examples of such are websites which are hosted in countries that have lenient data protection policies and do not offer such provisions.

Further, it is also important to clarify that online religious education may

bring some difficulties. Certain Muslims may practice some of their religion in a more personal context through the Internet, for instance by reciting the Quran or entering into private discussion about sensitive matters. There are risks, however, that if this kind of information is made available inappropriately, it will invite unacceptable exposure of the individuals to practices like surveillance or even discrimination especially in countries fraught with Islamophobia. Therefore, in order to combat these problems, it is paramount for Islamic educational websites to implement serious cyber security and explain clearly the practices regarding the collection of data about the users. It is critical to inform users as to their personal information rights, as well as platform's policies on information gathering and disposition in order to develop a sense of cooperation between users and service providers.

Furthermore, concerning data ownership, the question arises as to who's data it is once the information is posted in the social media? If social media platform users allow their facebook accounts to be used, such easing of data collection procedures, will these organisations be allowed to exploit this information in their marketing, or it shall be a no-no? Particularly with sensitive users wishing to expand their religious knowledge in a non-threatening environment, it is crucial that these platforms be able to provide the necessary information that they are responsible for all the data they collect.

**Conclusion:**

The transition from manuscripts to monitors stands today as a very strong testament towards the survival of Islamic knowledge. Over the years, the doctrines of Islam have been kept and transferred through such means as verbal recitals, hand-written books, typed books and so forth. There was no doubt that oral traditions as well as written forms were reliable as

means to record knowledge, and one could predict that with the technological progress there will be something new to record other reliable modes as well. Preservation of precious manuscripts in the digital form, application of advanced technologies including AI & ML and the internet are changing how Muslims head towards their religious inheritance.

In today's-changing society, these developments in technology will serve to ensure the existence and authenticity of the vast intellectual and spiritual culture of Islam. Digitalization in most areas tends to advocate for improved accessibility, ensuring that precious texts are preserved, and effective teaching resources are developed. Islamic studies in the contemporary era is more active and globalizing than ever.

However, given the fact that the subject of digital Islamic studies is gaining momentum, it is also necessary to somehow serve the middle ground between tradition and modernity. What should be avoided in creating new media and enabling new approaches towards Islamic knowledge is the degradation of its authentic, pedagogical and ethical values. Protecting the originality of Islamic culture from the dangers of modern innovations is a continuous effort among the researchers, the creative anti-technologists and the pedagogues.

In doing so, we can be confident that the immense wealth of Islamic scholarship will continue to be a source of light and strength for Muslims all over the world. The more we search for other avenues to convert and share this vast as a wellhead store of such Islamic knowledge will keep on emerging and will benefit the future as generation to generation, a strong civilization termed Islam will be appreciated in this globalized and advanced digital world.

### **Ethical Considerations and Challenges**

Although there are tremendous advantages that emanate from the

digitization of Islamic knowledge—namely, enhanced accessibility, a better mode of knowledge preservation, and wider circulation of Muslim knowledge—there are still serious ethical issues attendant to his situation. How does this technology further the ethical concerns on the use, possession, and security of Islamic knowledge given that the Religious sphere is gradually becoming authoritarian and Muslim education made available through digital platforms? Many of such concerns are centered on the business aspect of Islamic education together with the chances of infringing the privacy of users and securing their information on the internet.

#### **Commercialization of Knowledge:**

Of the many controversies that arise with the digitalization of Islamic knowledge, the most contested is the commercial aspect of the whole idea of Islamic education. Knowledge that pertains to Islam, in ancient times was always learned and shared with no cost at churches and mosques, madrasas, and other Islamic institutions. In addition to that, there have also been issues regarding the commercialization of Islamic knowledge, which reasonably raises the concern of whether knowledge is being sold. A lot of people do think film should be free even at the cinema and especially those considered to be religious and foundational in nature like Quran, Fiqh, Hadith, etc. Everything that involves basic teaching of Islam should be made open to Muslims irrespective of their economic status.

The proliferation of for-profit platforms such as Bayyinah and AlMaghrib, which run a string of courses in Islamic studies raises concerns over inclusivity. These platforms do tend to offer well researched references which may be useful scholastic contents however, they usually have a cost attached which limits access to most individuals. This leads to the issue of whether the better off Muslims will have a better opportunity of getting an

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Islamic education over the less well-off versus creating an imbalance in religious knowledge across the communities. This model has its shortcomings where any form of the Islamic education commodity has the potential of converting the center stage from religious devotion and engagements to profit making which is likely to cause loss of the spiritual importance of the Islamic teachings.

However, supporters of such platforms opine that the charges are inevitable in order to keep the business running, pay the teachers, and maintain a good quality of the information. Creating more intricate courses would require a considerable amount of resources and in the absence of any downloads cost these kinds of services may prove difficult to operate. In addition, a number of platforms including Bayyinah have been known to provide scholarship assistance, free courses, and free resources to the public so that people who cannot pay can still obtain Islamic knowledge. Despite this, scholars stress the importance of apportionment where maternity or commercial platforms ought to be innovative such that a portion of the content remains free and accessible whichever the case somehow Islamic knowledge is restricted to only those who are financially able.

### **Security and Privacy**

Data privacy and security concerns have emerged as a significant issue of concern as the number of Muslims seeking online means of religiosity continues to increase. In particular, one needs to be cautious about online activities related to Islamic education, which call for revealing personal details such as names, Email addresses, payment details, and participation in religious debates. Today, with the drastic increase in cyberspace attacks and data sale concerns, it is important for these sites to protect and adequately control such sensitive information.

In addition to this general liability, online Islamic learning platforms must take account of privacy legislation now in force in areas such as Europe, where any business operating there is thoroughly constrained in how it processes personal information because of the General Data Protection Regulation (GDPR). Still, some platforms are not bound by any such laws, especially those that are out of Europe or the United States for that matter where privacy laws are not as strict. This difference in the policies would put the users of the various platforms at risk with regards to their data, especially misuse or selling of the data without their approval.

Furthermore, since religious education entails reading and explaining sacred texts, as well as talking about religious matters privately, such learning is more of ‘engagement’ with the texts. If this information is compromised - through data leaks, breaches or unauthorized access - it could lead to the persecution of targeted individuals, particularly in countries with 大mo’

For example, there were instances in some jurisdictions wherein a person’s desire to actively engage in researching Muslim documents was enough for heads of the deradicalization centers to create excessive interest about the individual which raised issues of data protection.

In light of these problems, it is necessary for the digital islamic education services actively to protect their customers with strong cyber security. It also involves secure email communications, data encryption during transfer over the internet as well as network access control. In addition, services must manage the expectations of their users with regard to the use of their data. That is, users understand the scope of their data, how it is collected and their options to give consent or pull out. Platforms should therefore focus on the reasons for security and the education of users regarding their privacy options. It is important that Muslim women and

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other individuals feel free to practice Islamic education without any worries over being watched or their data being exploited.

The ownership of data is another perplexing ethical question. Information given to the users of the Islamic learning platforms, who does it belong to? Help the platform to develop or do business by restricting the use of this information for any other purpose than prohibited? Some platforms may feel a strong urge to deal with their user database by making advertisers or other third-party companies that have such an interest pay for access. Nevertheless, considering how delicate the area of teachings in religion is, such acts are very much questionable. They must be cardinally shaped a culture in which the users are the owners of data and their personal details are not commercially exploited without their permission to do so.

### **Conclusion**

Finally, it is worth noting that the move from manuscripts to monitors is one of the compelling features of the endurance of Islamic knowledge. For years, Islamic doctrine has been handed down through orality, through manual texts, and printed works. Now, thanks to the rise of new electronic technologies, these holy teachings are being protected in a revolutionary manner. The preservation of endangered manuscripts combined with advanced technologies like Artificial Intelligence (AI) and Machine Learning (ML) and the internet as a platform, have changed forever the ways in which Muslims the world over relates with their religious teachings.

In a fast-changing world, technology also plays a vital role in making sure that the rich legacies of Islam, both intellectual and spiritual, are not lost but are made to stay or become more relevant than before. As a result of inclusivity, advanced learning resources, and conservation of manuscripts, the growth of Islamic studies is on the rise and more active now than ever.

But this alteration by the technology revolution also comes with significant issues of ethics that need to be managed properly.

As the domain of digital Islamic studies expands, it is important to look for a middle ground between adhering to tradition and the acceptance of modernity. While technology's possible role in increasing access to information and learning is welcomed, it should not do so at the expense of the credibility, safety, and moral responsibility of the Islamic aspects and contents. Maintaining the purity of Islamic learning and knowledge will be possible if scholars, educationists, and practitioners are able to find ways in which they can work with new technologies.

Under this equilibrium, the wealth of Islamic learning will more constructively contribute within Muslims than ever before. Further, as more and more ways of storing, protecting, accessing and in some cases, even augmenting this information are developed, the legacy of Islam will still hold all its relevance and usefulness, engaging and nurturing children of future generations and deepening their relation to the magnificent muslim culture in the ever-changing digital landscape.



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