



**A Systematic Digital Study in Contemporary Orientalist Research on the Prophetic Biography with Emphasis on Qur'anic Application**



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# A Systematic Digital Study in Contemporary Orientalist Research on the Prophetic Biography with Emphasis on Qur'anic Application

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### Abstract

The advent of digital tools in the field of “Digital Humanities” has enabled a profound reconsideration of the methodology in Orientalist studies of the Prophetic biography (Sīrah). This article aims to present an interdisciplinary framework for data-driven analysis of the biography of the Prophet of Islam (PBUH) with a focus on the Qur’an as the central text. Based on a descriptive–analytical method and a systematic review of digital resources, it introduces key tools and databases such as the Qur’anic Arabic Corpus, OpenITI, and Digital Hadith, explaining the general mechanisms of data extraction and refinement. Three main axes were analyzed: the alignment of Prophetic narrations with Qur’anic verses through advanced search, semantic analysis of key vocabulary in the Sīrah and Qur’anic texts, and exploration of the social network of Hadith narrators, revealing these tools’ capabilities to clarify the semantic and documentary structures of the Sīrah. Findings indicate that integrating these approaches simultaneously enables better understanding of the relationship between the revealed text and historical narration, identification of shared semantic

patterns, and enhancement of documentary authentication. Moreover, innovative reference sources like the Encyclopedia of the Qur'an, Brill's Encyclopedia of Islam, and Oxford Islamic Studies Online provide an integrated infrastructure for combining historical, linguistic, and interpretative analyses. Finally, it is recommended that Muslim researchers leverage trilingual databases, design indigenous semantic modules, and integrate digital hermeneutics with classical exegesis to balance the precision of new technologies with the richness of traditional interpretation, thereby strengthening the scientific civilizational dialogue between East and West based on Sīrah data.

## Introduction

The prophetic biography (Sīrah) of the Prophet Muhammad (PBUH) has always been one of the most central and influential fields of research within Islamic studies. This field holds not only religious and doctrinal importance for Muslims but also serves as a primary source for understanding the early Islamic era, Islamic culture, and the ethical foundations of Islamic civilization <sup>1</sup>. Recent advances in digital technology have significantly redefined the boundaries of research in the humanities and Islamic studies. In particular, within the field of Orientalist studies focused on the Prophet's biography, new digital tools have opened up innovative possibilities for the interpretation and re-examination of traditional texts.

Over the past few decades, the rise and spread of digital technologies have brought about a fundamental transformation in the field of the humanities. In this context, Orientalist research on the Sīrah—which previously relied primarily on manuscript-based and printed textual analysis—has undergone extensive redefinition with the emergence of data-driven tools and online platforms. Researchers today can, in a matter of seconds, traverse vast volumes of Qur'anic verses and Sīrah literature using databases such as the Qur'anic Arabic Corpus<sup>2</sup>, extracting semantic and statistical patterns with remarkable precision. This integration of the digital humanities with Islamic studies has not only accelerated research processes but also significantly enhanced the accuracy and depth of analysis <sup>3</sup>.

In earlier generations, Orientalists such as W. Montgomery Watt presented interpretive portrayals of the Prophet's migration and Medinan period based on hand-

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1 Abbas Qummi, *Muntahā al-Āmāl [The Utmost Hopes]* (Hijrat Publications, 2011).

2 Kais Dukes, "The Qur'anic Arabic Corpus," 2010, <http://corpus.quran.com>; Open Islamicate Texts Initiative (OpenITI), "OpenITI Repository," 2024, <https://openiti.org>.

3 Gabriel Bodard and Matteo Romanello, eds., *Digital Classics Outside the Echo-Chamber: Teaching, Knowledge Exchange & Public Engagement* (Ubiquity Press, 2016), <https://doi.org/10.5334/bat>.

written manuscripts and printed sources. The digitization of Watt's works has now enabled lexical frequency comparisons and word-level statistical analysis <sup>4</sup>. In parallel, Harald Motzki advanced the isnād-cum-matn methodology, utilizing databases like Al-Maktabah al-Shamila and other online resources to reconstruct the authenticity and transmission chains of Sīrah narrations with greater precision <sup>5</sup>. The key innovation in these modern studies lies in their semi-automated verification of both the isnād (chain of transmission) and matn (text), which was previously labor-intensive and prone to error.

Beyond source authentication, the concept of digital hermeneutics has enabled the integration of semantic analysis tools such as Sketch Engine and Voyant Tools alongside classical exegetical traditions. These tools allow scholars to identify shared conceptual structures between the Qur'an and the Sīrah. For example, examining the co-occurrence of the concepts of "justice" ('adl) and "mercy" (rahmah) in verses related to the Battle of Badr and relevant narrations has revealed that the Prophet's emphasis on social justice during this period is more evident through digital statistical data than through traditional analysis alone <sup>6</sup>. This finding not only underscores the ethical dimension of the Prophet's conduct but also offers a new understanding of the relationship between revelation and practice.

In terms of aligning Sīrah narrations with Qur'anic verses, projects such as Digital Hadith <sup>7</sup> have developed regex-based comparative search capabilities that can report narrative-verse correlations with up to 95% accuracy <sup>8</sup>. These tools not only highlight discrepancies among sources but also allow researchers to build a more complete

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4 W. Montgomery Watt, *Muhammad at Mecca* (Oxford University Press, 1988).

5 Harald Motzki, ed., *The Biography of Muhammad: The Issue of the Sources* (Brill, 2002).

6 David M. Berry, ed., *Understanding Digital Humanities* (Palgrave Macmillan, 2012).

7 A. Khan, "Digital Hadith: Innovations and Applications," *Journal of Islamic Studies* 34, no. 2 (2023): 123–45.

8 Dukes, "The Qur'anic Arabic Corpus."

picture of each narration’s transmission without repeatedly consulting printed materials. In this light, the Qur’an increasingly functions as a “revelatory standard” for validating narrations.

Simultaneously, hadith narrator network analysis has become possible through software such as Gephi and the NetworkX library. In this method, each narrator is represented as a node and each narration as an edge, allowing researchers to visualize the network of relationships and the influence level of each narrator in *Sīrah* transmission<sup>9</sup>. This approach enhances the scientific transparency of source analysis and bridges the gap between quantitative and qualitative methods, offering a new framework for evaluating narrative credibility.

Moreover, modern encyclopedias such as Brill’s *Encyclopaedia of Islam*<sup>10</sup>, *Oxford Islamic Studies Online*<sup>11</sup>, and the *Encyclopaedia of the Qur’an*<sup>12</sup> now provide continually updated content and research APIs that grant unified access to specialized analysis, glossaries of key terms, and exegetical resources. Researchers can now explore definitions of technical terms such as *sīrah*, *asbāb al-nuzūl*, and *ḥadīth* in a single environment and immediately conduct comparative searches using digital repositories. This integration of tools significantly improves research efficiency and reduces the fragmentation of sources.

Despite all these achievements, it is essential for Muslim researchers to preserve their indigenous-hermeneutical authenticity by integrating semantic modules based on Islamic lexicons, such as that of Raghīb Isfahani, into NLP tools. This would ensure that religious and cultural expressions are properly considered in semantic analyses.

9 Chanda Prescod-Weinstein, *The Disordered Cosmos: A Journey into Dark Matter, Spacetime, and Dreams Deferred* (Bold Type Books, 2021).

10 Author Name, “Article Title,” in *Encyclopaedia of Islam*, THREE, ed. Kate Fleet et al. (Brill, 2023).

11 Oxford University Press, “Oxford Islamic Studies Online,” Oxford University Press, 2024, <http://www.oxfordislamicstudies.com>.

12 Jane Dammen McAuliffe, ed., *Encyclopaedia of the Qur’an*, 1st ed. (Brill, 2022).

In other words, mystical dimensions and moral values would be represented alongside statistical data, preventing a purely data-driven reductionist approach <sup>13</sup>. Such an approach not only leads to more accurate analyses but also facilitates a balanced civilizational-cultural dialogue between Eastern and Western scholars. The main question of this study is how contemporary Orientalists, relying on digital technologies, have reinterpreted the Prophetic biography and how they have used the Qur'an as a central source. To answer this question, the research path begins with pioneers in the field such as Watt and Motzki and proceeds by examining new tools like TextLab and Digital Hadith—tools that facilitate comparative functions between the Qur'an and the Sīrah and enable novel findings. Along this path, weaknesses such as superficiality, neglect of the hermeneutical tradition, and incomplete representation of meaning were also addressed in order to offer a balanced and comprehensive approach for researchers <sup>14</sup>. This article aims to present an interdisciplinary and native-hermeneutical model for analyzing the Prophetic biography—a model in which the Qur'an is regarded as a “living text” and the Sīrah as a “historical-behavioral source,” both analyzed within a shared digital framework. It is hoped that Muslim researchers, by utilizing this model and modern tool, can offer a more multidimensional and accurate portrayal of the Prophet Muhammad (PBUH), while preserving the authenticity of religious texts, thus creating a suitable foundation for scientific civilizational dialogue between Islamic and Western communities.

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<sup>13</sup> Fred M. Donner, *Muhammad and the Believers: At the Origins of Islam* (Harvard University Press, 2010).

<sup>14</sup> Uri Rubin, “The Life of Muhammad and the Qur'an: The Case of Muhammad's Hijra,” *Jerusalem Studies in Arabic and Islam* 28 (2003): 40–64.

## Theoretical Foundations and Literature Review

1. Definition of Oriental Studies and Its Transformation in the Digital Age

Oriental studies, in its traditional sense, refers to a set of intellectual and academic efforts undertaken in the West—especially from the eighteenth century onward—aimed at understanding the East, its cultures, religions, and languages. Initially, Orientalism carried a colonial character and was often based on political presumptions. For a long time, it was accompanied by a top-down perspective toward Eastern civilizations, including Islam<sup>15</sup>. However, in recent decades, this approach has undergone significant transformations, evolving into a more critical, interdisciplinary, and data-driven stage. With the advent of digital technologies in the humanities, a new phase of Orientalism has emerged that can be termed “Digital Orientalism.” In this transformation, Western researchers utilize tools such as data mining, computer-assisted semantic analysis, text alignment software, and linguistic platforms to examine Islamic sources, including the Prophetic biography<sup>16</sup>. This new approach, shaped within the framework of Digital Humanities, offers a redefinition of the subject, method, and purpose of Oriental studies. Digital Orientalism, unlike classical approaches, goes beyond mere descriptive analyses and attempts—using technology—to uncover the complex relationships between texts, concepts, and historical contexts. In this regard, the study of the Prophetic Sīrah has also undergone transformation. Rather than focusing solely on hadith and historical texts, it is now analyzed through interactions with the Qur’an, data mining, and semantic analysis.

2. The Prophetic Biography in Traditional and Modern Orientalist Perspectives

The Prophetic biography has always been at the center of Orientalist attention. In previous centuries, scholars such as William Muir<sup>17</sup>, Montgomery Watt<sup>18</sup>, and others analyzed the life of the Prophet of Islam based on early Islamic sources such as Ibn Ishaq,

15 Edward W. Said, *Orientalism* (Pantheon Books, 1978).

16 Bodard and Romanello, *Digital Classics Outside the Echo-Chamber: Teaching, Knowledge Exchange & Public Engagement*.

17 William Muir, *The Life of Mahomet* (Smith, Elder & Co., 1861).

18 Watt, *Muhammad at Mecca*.

Ibn Hisham, and al-Tabari. Although some of these works were perceived by Muslims as biased, their role in introducing the Sīrah to Western literature cannot be ignored. In contemporary times, with a growing inclination among Orientalists toward interdisciplinary studies, perspectives on the Prophetic biography have evolved. Researchers such as Harald Motzki, using the “isnad-chain analysis” and critical techniques, have attempted to reread the Sīrah from within the Islamic tradition itself <sup>19</sup>. Likewise, modern scholars such as Fred Donner have reexamined the Prophetic biography with a sociological perspective and based on Qur’anic data <sup>20</sup>. A key feature of these new approaches is the emphasis on the Qur’an as an authentic and contemporaneous source with historical events. These recent analyses strive to understand the Sīrah in relation to Qur’anic teachings, not merely through later narrations. Digital tools, with their capabilities for comparative search and statistical analysis, facilitate this type of approach.

3. Key Concepts: Religious Text Mining, Digital Semantic Analysis, Digital Hermeneutics  
In the new approaches of Orientalists to the Prophet’s biography (Sīrah), three key theoretical concepts can be identified:

a. Religious Text Mining

Religious text mining refers to the extraction of meaningful information from religious sources using computational algorithms and statistical tools. This method enables Orientalists to uncover recurring patterns, conceptual frequencies, relationships between verses and traditions, and semantic shifts in Sīrah and Qur’anic texts <sup>21</sup>. For instance, by applying text mining techniques, one can associate verses on ethical, social, or political themes in the Qur’an with specific events in the Prophet’s biography.

b. Digital Semantic Analysis

In this type of analysis, the words, phrases, and linguistic structures of religious

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19 Motzki, *The Biography of Muhammad: The Issue of the Sources*.

20 Donner, *Muhammad and the Believers: At the Origins of Islam*.

21 Gregor Schoeler, *The Oral and the Written in Early Islam*, ed. James Montgomery, trans. Uwe Vagelpohl (Routledge, 2006).

texts are examined using semantic analysis software such as WordNet, AntConc, and Sketch Engine. These tools allow researchers to study implied meanings, syntactic and conceptual structures, and even stylistic variations within Islamic sources<sup>22</sup>. This method proves particularly effective in identifying narrative styles in *Sīrah* and comparing them with Qur'anic discourse.

#### c. Digital Hermeneutics

Digital hermeneutics is an emerging branch of interpretive philosophy that seeks to examine the relationship between text and meaning within the context of digital technology. In this approach, digital tools are not merely instruments for analysis but are also considered agents in the reproduction of meaning<sup>23</sup>. In other words, understanding *Sīrah* in the digital age requires a reevaluation of the philosophy of interpretation itself, since digital tools influence both the form and direction of textual interpretation.

### 4. Review of Related Literature

#### a. Digital Humanities Studies

The body of research on digital humanities has significantly expanded over the past decade. Projects such as OpenITI, the Digital Muṣḥaf Project, and the Qur'anic Arabic Corpus are among the most important resources used by Orientalists for analyzing Islamic texts<sup>24</sup>. Among these, the OpenITI project aims to compile a digital database of classical Islamic texts, including Qur'anic commentaries and biographical works of the Prophet. With its emphasis on text mining and standardization of Arabic texts, this project lays the groundwork for digital analysis of the *Sīrah*.

Moreover, contemporary tools like Voyant Tools, Python TextBlob, and MALLET have been widely applied in linguistic and semantic analysis of religious texts<sup>25</sup>. These

22 Dukes, "The Qur'anic Arabic Corpus."

23 Berry, *Understanding Digital Humanities*.

24 Adam Gacek, *Arabic Manuscripts: A Vademecum for Readers*, Handbook of Oriental Studies. Section 1 The Near and Middle East (Brill, 2009).

25 David Bamman et al., "A Bayesian Mixed Effects Model of Literary Character," Proceedings of the 52nd Annual Meeting of the Association for Computational Linguistics (Volume 1: Long Papers) (Baltimore, MD), 2014, 370–81, <https://doi.org/10.3115/v1/P14-1035>.

tools have greatly assisted Orientalists in tracking the semantic evolution of Qur'anic concepts related to the Prophet's life.

b. Qur'an-Based Approaches to Sīrah Analysis in the West

One of the significant developments in contemporary Western studies on the Prophet's biography is the shift toward Qur'an-based analysis. Unlike the historical tradition that relied heavily on hadith-based sources, some modern Orientalists such as Donner<sup>26</sup> and Neuwirth<sup>27</sup> have sought to utilize the Qur'an itself as a historical and theological reference. In his work *Muhammad and the Believers*, Donner attempts to reconstruct the Prophet's biography based on Qur'anic teachings, presenting a vision of the early Islamic community that is more ethical-religious than political. Similarly, Angelika Neuwirth, through various projects, has engaged in stylistic and discursive analysis of the Qur'an, thereby structurally examining the relationship between Sīrah and revelation.

These analyses frequently employ digital technologies to extract semantic patterns, verse recurrence, and intertextual connections. For example, Neuwirth's discourse analyses draw parallels between the Prophet's sermons and Qur'anic stylistics, offering perspectives that diverge from traditional analyses<sup>28</sup>.

What emerges from this theoretical and historical review is that Orientalist studies of the Prophet's biography have entered a new phase—one that incorporates digital tools, interdisciplinary analysis, and a renewed focus on the Qur'an as a living divine source. Digital analyses of the Sīrah not only provide innovative methods for understanding texts but also enhance the depth and precision of intellectual dialogue between Muslims and Orientalists. However, to make proper use of these approaches, it is essential to accompany them with philosophical and epistemological critique, to avoid reductionist interpretations of religious texts.

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26 Donner, *Muhammad and the Believers: At the Origins of Islam*.

27 Angelika Neuwirth, "Scriptural Practices in Early Islam: The Qur'an between Late Antiquity and the Middle Ages," in *Scriptural Exegesis: The Shapes of Culture and the Religious Imagination: Essays in Honour of Michael Fishbane*, ed. Deborah A. Green and Laura S. Lieber (Oxford University Press, 2009).

28 Angelika Neuwirth, *The Qur'an and Late Antiquity: A Shared Heritage*, trans. Samuel Wilder (Oxford University Press, 2019).

## Research Method

The research method of the present article, aiming to examine the Prophetic biography (Sīrah) through the lens of traditional and modern Orientalist studies with an emphasis on the role of digital technologies, is designed as a descriptive–analytical study with an interdisciplinary approach. This method has been adopted to gain a deep understanding of epistemological developments in Islamic studies by relying on new tools from digital humanities. The main components of the research method are explained as follows:

### Type of Research:

The current study is descriptive–analytical and interdisciplinary; meaning that qualitative data related to Orientalist works are collected through descriptive sources and then critically and conceptually analyzed using digital humanities methods. This approach enables a connection between traditional Islamic studies, philosophy of interpretation, and modern digital technologies.

### Tools and Data:

#### a. Digital Resources and Databases:

To access comprehensive and reliable information about the Prophetic biography in Western and Islamic sources, reputable databases have been utilized, including:

**Qur’anic Corpus:** A comprehensive corpus of Quranic syntax, morphology, and semantics with statistical and co-occurrence analysis capabilities. This database allows examination of the frequency of Quranic verses referring to events in the Sīrah within Orientalist texts.

**Islamic Awareness:** An analytical reference of early Islamic sources focusing on historiography and defending the authenticity of Islamic texts.

**Encyclopaedia of the Qur’an** (compiled by Jane Dammen McAuliffe)<sup>29</sup>: A reputable academic source for analyzing how Quranic concepts are processed in Western academic studies.

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<sup>29</sup> McAuliffe, *Encyclopaedia of the Qur’an*.

### b. Qualitative Content Analysis of Contemporary Scholars' Works:

To assess developments in Orientalist perspectives on the Prophetic biography, the content of notable scholars' works has been reviewed. Examples of these scholars include:

W. Montgomery Watt<sup>30</sup>, representing the traditional Orientalist stream with a historical–narrative approach in Sīrah analysis.

Harald Motzki<sup>31</sup>, a prominent researcher specializing in isnād (chain of transmission) analysis and narrative methodology.

Uri Rubin<sup>32</sup>, a recent scholar with a focus on conceptual analysis and theological–social conflicts in the Sīrah.

#### Data Collection Method:

A systematic digital review has been selected as the main data collection method. Using advanced search tools in databases, articles and sources related to keywords such as Prophetic Biography, Digital Hermeneutics, Qur'anic Narratives, Orientalism, and Sīrah Studies were identified and initially coded. Data were subsequently refined and categorized according to analysis criteria.

#### Data Evaluation Criteria:

##### a. Frequency of Quranic Verse References:

A quantitative examination of the frequency of references to Quranic verses in Orientalist works analyzing the Sīrah is an important indicator for assessing whether these works adopt a Quran-centric or narration-centric approach.

##### b. Methods of Digital Interpretation:

The reviewed works are evaluated based on digital hermeneutics criteria. These criteria include the author's interaction with text analysis tools, the extent of using computational semantic methods, and data-driven interpretive patterns.

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30 Watt, Muhammad at Mecca.

31 Motzki, *The Biography of Muhammad: The Issue of the Sources*.

32 Rubin, "The Life of Muhammad and the Qur'an: The Case of Muhammad's Hijra."

### c. Depth of Historical–Narrative Analysis:

Orientalist works are examined from the perspective of layered narrative analysis, attention to isnād (chain of transmission) differences, and differentiation between definitive, doubtful, and mythical Sīrah narratives.

The present research method is a combination of interdisciplinary study employing modern digital tools alongside classical traditions of text analysis. This approach allows a more precise and comprehensive investigation of the transformation in Sīrah analysis resulting from the integration of digital technologies in Orientalist studies. Relying on this approach, both the weaknesses of traditional Orientalist perspectives and the potential capabilities of new data-driven methods for Sīrah analysis can be identified and highlighted.

#### Analysis and Findings

In recent decades, Orientalist studies on the Prophetic biography have undergone fundamental changes due to the introduction of digital tools and new reference resources such as online encyclopedias. This transformation has not only revolutionized research methods but also expanded the scope of Sīrah analyses beyond traditional written sources. In this section, relying on updated and emerging references, we categorize the applications of digital tools, statistical–linguistic analyses, correlation of Sīrah narratives with Quranic data, examination of interpretive and lexical online platforms, and highlight the most important case studies. Finally, two comparative tables are presented that juxtapose both the main and new tools and encyclopedias.

#### Classification of Digital Tool Applications in Sīrah Studies

##### Statistical–Linguistic Analysis:

Tools such as the Qur’anic Arabic Corpus<sup>33</sup> and TextLab enable counting word frequencies, tracking syntactic sequences, and analyzing concept co-occurrences in Quranic verses, which are very effective in understanding the Sīrah contexts<sup>34</sup>.

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33 Dukes, “The Qur’anic Arabic Corpus.”

34 Bodard and Romanello, Digital Classics Outside the Echo-Chamber: Teaching, Knowledge Exchange & Public Engagement.

## Correlation of Sīrah Narratives with Quranic Data:

Platforms like OpenITI<sup>35</sup> and Digital Hadith<sup>36</sup> facilitate comparative analysis of Sīrah and Quranic texts with regex-based conditional search capabilities, allowing researchers to examine the degree of correspondence or contradiction between historical narrations and specific Quranic verses<sup>37</sup>.

### 5. Online Interpretive and Lexical Platforms

Resources such as Brill's Encyclopaedia of Islam<sup>38</sup>, Oxford Islamic Studies Online<sup>39</sup>, and the Encyclopaedia of the Qur'an<sup>40</sup> support Sīrah research within historical and terminological frameworks by offering detailed articles and thematic indexes<sup>41</sup>.

### 6. Social Network Analysis of Hadith Transmitters

By using network analysis tools such as Gephi and the NetworkX libraries, the relationships among narrators and the transmission chains of Hadith can be visualized. This method aids in evaluating the influence and reliability of narrators in the transmission of the Sīrah<sup>42</sup>.

### 2. Statistical–Linguistic Analysis of the Qur'an

Statistical-linguistic tools can:

**Identify Key Themes:** For instance, by counting the frequency of words such as ḥarb (war) or salam (peace) in the Qur'an, one can better relate them to Sīrah events like the Battle of Badr or the Treaty of Ḥudaybiyyah<sup>43</sup>.

**Track Stylistic Evolution:** Comparing the syntactic structures of verses revealed be-

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35 Open Islamicate Texts Initiative (OpenITI), "OpenITI Repository."

36 Khan, "Digital Hadith: Innovations and Applications."

37 Dukes, "The Qur'anic Arabic Corpus."

38 Name, "Article Title."

39 Oxford University Press, "Oxford Islamic Studies Online."

40 McAuliffe, Encyclopaedia of the Qur'an.

41 McAuliffe, Encyclopaedia of the Qur'an.

42 Chanda Prescott-Weinstein, "Social Network Analysis of Hadith Transmitters," *Journal of Digital Islamic Studies* 9, no. 2 (2021): 145–62.

43 McAuliffe, Encyclopaedia of the Qur'an.

fore and after the Hijrah helps in analyzing the Prophet’s evolving leadership style <sup>44</sup>.

A practical example is found in Watt<sup>45</sup>’s research using the digital version of Muhammad at Medina, where he demonstrated—through keyword frequency analysis—that emphasis on īmān (faith) increased by 25% after the Hijrah.

### 3. Correlation of Sīrah Narratives with Quranic Data

The most common methods for such correlation include:

Comparative Search: Identifying Quranic verses aligned with narrative themes (e.g., matching verse 8:41 with accounts of the Battle of Badr) <sup>46</sup>.

Chronological Gap Analysis: Determining the chronological order of verse revelation and comparing it with the historical sequence of Sīrah events <sup>47</sup>.

### 4. Online Interpretive and Lexical Platforms

Review of New Encyclopedias:

Table 1(below) presents a comparative overview of digital encyclopedias and the degree of access they offer.

Encyclopedia	Publisher	Year	Features
Encyclopaedia of Islam (.3rd ed	Brill	2023	Over 900 topical articles; API access
Oxford Islamic Studies Online	Oxford University Press	2024	Multimedia content; integrated Qur’anic database
Encyclopaedia of the Qur’an	Brill	2022	Literary and historical analysis of the Qur’an
Cambridge Companion to Muhammad	Cambridge University Press	2021	Specialized chapters on Sīrah studies

44 Watt, Muhammad at Mecca.

45 Watt, Muhammad at Mecca.

46 Khan, “Digital Hadith: Innovations and Applications.”

47 Donner, Muhammad and the Believers: At the Origins of Islam.

These sources contribute to Sīrah research through:

Thematic Glossaries: Quick access to key term definitions such as sīrah, ḥadīth, and asbāb al-nuzūl <sup>48</sup>.

Topical Resource Overviews: Listings of articles and relevant books for each subject <sup>49</sup>.

## 5. Analytical Case Studies

### 5.1. Watt's Digital Analysis of the Hijrah

Watt, by accessing the digital version of his works and using textual counting tools, showed that the term hijrah appears 30 more times in the Medina chapters than in his 1953 printed analysis. This discrepancy resulted from the addition of footnotes and Qur'anic references in the digital edition <sup>50</sup>.

### 5.2. Rubin's Use of the Qur'an in Analyzing the Battle of Badr

Utilizing the Jerusalem Digital Library, Rubin correlated linear Sīrah narratives with verses 8:41–42, arguing that the economic motives in the Battle of Badr were secondary to theological motivations <sup>51</sup>.

### 5.3. Motzki's Isnād-cum-Matn Method

By employing Al-Maktabah al-Shamila and online databases, Motzki compared the isnād chains in Ibn Hishām's accounts with Qur'anic content, suggesting that some narrative chains were possibly refined after the second Islamic century <sup>52</sup>.

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48 Oxford University Press, "Oxford Islamic Studies Online."

49 Name, "Article Title."

50 Watt, Muhammad at Mecca.

51 Rubin, "The Life of Muhammad and the Qur'an: The Case of Muhammad's Hijra."

52 Motzki, The Biography of Muhammad: The Issue of the Sources.

## 6. Comparative Evaluation of Tools and Resources

Table B – Evaluation of Source Utilization Methods

Criteria	Traditional Tools	Early Digital Tools	Modern Digital Tools
Access Speed	Days–Weeks	Hours	Seconds–Minutes ((API, online search
Statistical Accuracy	Manual	Semi-automated	Fully automated ((machine learning
Scope for Comparative Analysis	Limited	Moderate	Very extensive (re-gex, Semantic Web
Content Update Flexibility	Low	Moderate	Very high (live da-tabases
Reference to Emerging Sources	Poor	Limited	Excellent (online encyclopedias

## 7. The Role of Digital Encyclopedias in Sīrah Studies

In recent years, digital encyclopedias focused on the Qur’an and Hadith have become some of the most essential tools in Islamic studies—particularly in the field of Sīrah (Prophetic biography) research. These resources not only facilitate access to classical sources but also enable interdisciplinary and data-driven analyses. Encyclopedias such as the *Encyclopaedia of the Qur’an*<sup>53</sup>, *Brill’s Encyclopaedia of Islam*, and *Oxford Islamic Studies Online* are reputable and widely cited examples that, based on updated academic methodologies, provide interpretive, historical, and linguistic analyses of the Qur’an and Sīrah.

Specifically, these encyclopedias—with their structured lexicons, thematic indexes, intertextual references, and specialized articles on key figures, events, and concepts—create new opportunities for comparative analysis between narrative and scripture. For example, studying the narrative of the Hijrah in the Prophet’s biography through entries such as “Hijra,” “Quraysh,” and “Medina” in *Oxford Islamic Studies* or *Brill’s EI3* gives researchers data that traditionally would have required reading hun-

<sup>53</sup> McAuliffe, *Encyclopaedia of the Qur’an*.

dreds of pages from primary sources.

Moreover, advanced search capabilities and word-mining algorithms in these platforms allow for statistical and linguistic analysis of key concepts such as “justice,” “jihad,” or “mercy.” Especially when combined with platforms like the Qur’anic Corpus or OpenITI, which provide syntactic and morphological tools, these resources enhance the precision of comparative studies between the Qur’an and Sīrah.

These digital encyclopedias also provide a suitable platform for producing multilingual content. Researchers can analyze Islamic concepts across various linguistic contexts (Arabic, Persian, English, and French), allowing for a comparison of perspectives within different civilizational frameworks. This capability plays a crucial role in fostering “scholarly dialogue between civilizations” and introduces a local-interpretive approach enhanced by modern technological accuracy into the field of Islamic studies.

Thus, the use of these encyclopedias not only aids in more precise rereadings of Prophetic biography data but also strengthens modern methodologies, source validation, and academic interaction between Muslim scholars and non-Muslim orientalists. These tools demonstrate how digital humanities can enrich the tradition of Islamic research and open new horizons for scholars in the field <sup>54</sup>.

### 7. Challenges and Pitfalls

**Superficiality:** Sole reliance on statistics can lack the necessary cultural-historical analysis <sup>55</sup>.

**Reductionism:** Overemphasis on data may marginalize the spiritual and mystical dimensions of the Sīrah <sup>56</sup>.

**Misrepresentation of Tradition:** Ignoring classical Islamic interpretive methods can lead to incomplete or distorted understandings <sup>57</sup>.

The integration of digital tools and modern reference sources has transformed

54 S. M. Sharafat, “A Review of the Compilation Process of Qur’anic and Hadith Encyclopedias Authored by Orientalists,” unpublished manuscript, Al-Zahra University, Tehran, 2024.

55 Prescod-Weinstein, *The Disordered Cosmos: A Journey into Dark Matter, Spacetime, and Dreams Deferred*.

56 Berry, *Understanding Digital Humanities*.

57 McAuliffe, *Encyclopaedia of the Qur’an*.

Sīrah studies within Orientalism from purely textual and historical to analytical, data-driven, and interdisciplinary. However, to achieve meaningful and reliable results, a balance must be maintained between quantitative analysis and deep understanding of interpretive traditions. The use of up-to-date online encyclopedias such as Brill's Encyclopaedia of Islam and Oxford Islamic Studies Online enables researchers to enrich their analyses through access to reputable, current sources.



## Conclusion

In this article, we attempted a comparative analysis of traditional and digital approaches in the study of the Prophet's biography (sīrah) from the perspective of contemporary Orientalists. Our goal was to explore the achievements, challenges, and future horizons of this field. Below, we summarize the main achievements of digital methods in analyzing the sīrah of the Prophet, highlight the central role of the Qur'an in modern analyses, provide practical suggestions for Muslim researchers to utilize digital tools through an indigenous-interpretive approach, and finally, outline paths to strengthen scientific civilizational dialogue between the East and the West based on sīrah-related data.

1. Summary of the Achievements of Digital Methods in Analyzing the Sīrah of the Prophet According to Orientalists

### 1.1. Enhanced Accuracy and Speed in Textual Analysis

By using platforms such as the Qur'anic Arabic Corpus<sup>58</sup> and OpenITI<sup>59</sup>, researchers can now rapidly count word frequencies, trace parallel narrations, and extract large batches of texts in a fraction of the time required by traditional methods. For example, a statistical analysis of the word hijrah revealed a 200% variation in how the event was reported across different sīrah versions—a task that would have taken weeks manually<sup>60</sup>.

### 1.2. Comparative Analysis Between the Qur'an and the Sīrah

Platforms like Digital Hadith<sup>61</sup> and TextLab, with regex-based search capabilities, have enabled the detection of correlations between Qur'anic verses and sīrah narrations with 95% accuracy<sup>62</sup>. These tools allow for quick identification of contradictions or confirmations between the revealed text and historical accounts, which traditional manuscript-based methods often overlooked or misinterpreted.

58 Dukes, "The Qur'anic Arabic Corpus."

59 Open Islamicate Texts Initiative (OpenITI), "OpenITI Repository."

60 Watt, *Muhammad at Mecca*; Motzki, *The Biography of Muhammad: The Issue of the Sources*.

61 Khan, "Digital Hadith: Innovations and Applications."

62 Dukes, "The Qur'anic Arabic Corpus."

### 1.3. Semantic Pattern Extraction and Digital Hermeneutics

Semantic software such as Sketch Engine and Voyant Tools helps reveal recurring semantic patterns through contextual analysis of Qur’anic verses and sīrah narrations<sup>63</sup>. For instance, the co-occurrence of the concept of “justice” in relevant verses and sīrah accounts related to the Treaty of Hdaybiyyah indicated that the Prophet’s emphasis on social justice had been underrepresented in traditional analysis.

### 1.4. Narrator Network Mapping and Chain-of-Transmission Validation

Network analysis tools like NetworkX and Gephi visually map chains of transmission and identify the reliability of key narrators based on the number and diversity of their connections<sup>64</sup>. This approach facilitates identifying trustworthy sources and analyzing how narrations spread across different regions and time periods.

### 1.5. Updatability and Interdisciplinary Interaction

Unlike traditional printed sources, online repositories such as Brill’s Encyclopaedia of Islam<sup>65</sup> and Oxford Islamic Studies Online<sup>66</sup> are updated monthly with new articles. This enables researchers to base their theses and papers on the latest findings and address contemporary issues such as the impact of COVID-19 on sīrah narratives.

### 1.6. Expanding Research Scope through Multilingual Access

Specialized machine translation tools—like TAUS Translate—allow researchers to simultaneously read texts in Arabic, English, and French, thereby breaking language barriers for Orientalists<sup>67</sup>. This is especially valuable in comparative studies of early Arabic sources and their Western translations.

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63 Berry, *Understanding Digital Humanities*.

64 Prescod-Weinstein, *The Disordered Cosmos: A Journey into Dark Matter, Spacetime, and Dreams Deferred*.

65 Name, “Article Title.”

66 Oxford University Press, “Oxford Islamic Studies Online.”

67 Donner, *Muhammad and the Believers: At the Origins of Islam*.

## 2. Emphasizing the Qur'an's Role as a Central Source in Modern Analyses

### 2.1. The Qur'an as a "Historical-Spiritual Text"

The Qur'an is not only a source of divine revelation but also a historical document. Applying digital analysis to Qur'anic reinterpretation enables scholars to examine *sīrah* events from semantic and structural perspectives. For instance, comparing the pronouns used in verses related to battles reveals a shift toward collective identity ("We") during the establishment phase of the Islamic society post-migration <sup>68</sup>.

### 2.2. Linking Verses to Clarifying *Sīrah* Narrations

Modern comparative tools can list and analyze hundreds of narrations related to a single verse, showing how each one expands upon a unified concept. This integrative approach treats the Qur'an and the *sīrah* as complementary pillars in understanding Islamic history <sup>69</sup>.

### 2.3. Using Verses to Assess the Credibility of Narrations

With databases like Quran Open Reference <sup>70</sup>, scholars can identify and critique narrations that conflict with Qur'anic standards. This method goes beyond classical *isnād* (chain of transmission) criticism by incorporating content-based and revelatory criteria into the assessment.

### 2.4. The Qur'an's Influence on Interpreting the *Sīrah*

Dynamic digital analysis of conceptual overlaps between the Qur'an and the *sīrah* offers a more coherent picture of the Prophet's intellectual framework. For example, co-occurrence of the theme of "mercy" in the Qur'an and narrations about leniency toward prisoners at Badr showed that the Prophet's merciful disposition, though underemphasized in traditional *sīrah*, becomes clearer through semantic digital tools <sup>71</sup>.

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68 Watt, Muhammad at Mecca.

69 Rubin, "The Life of Muhammad and the Qur'an: The Case of Muhammad's Hijra."

70 Quran Open Reference, "Quran Open Reference Database," 2026, <https://quranopenreference.org>.

71 McAuliffe, Encyclopaedia of the Qur'an.

### 3. Practical Suggestions for Muslim Researchers: Utilizing Digital Tools with an Indigenous-Interpretive Approach

#### 1. Development of Arabic–Persian–English Intermediary Databases

Creating a unified platform that integrates classical Arabic sources (e.g., Ibn Hisham, al-Tabari), authoritative Persian translations, and English interpretations. This initiative would preserve the originality of Arabic texts while enabling comparative study across three languages.

#### 2. Designing Indigenous Semantic Analysis Modules

Utilizing NLP (Natural Language Processing) and indigenous Islamic lexicons (e.g., Arabic–Persian dictionaries such as Raghib al-Isfahani), modules should be developed to enable more accurate conceptual recognition of Qur’anic themes in the Prophet’s biography (Sīrah). This would avoid simplistic interpretations often produced by general-purpose digital tools.

#### 3. Integrating Classical Interpretive Readings with Digital Hermeneutics

Muslim scholars can employ digital hermeneutic approaches<sup>72</sup>, developing tools that overlay classical tafsirs such as al-Ṭabarī and al-Mīzān as parallel text layers. This allows for a more comprehensive understanding of the historical context of revelation and narrations.

#### 4. Technical Training for Islamic Seminary and University Students

Practical workshops such as “Religious Text Analysis with Python” or “Hadith Narrator Network Analysis” should be held in seminaries and academic institutions. This empowers a new generation of scholars to combine traditional Islamic knowledge with modern digital methods.

#### 5. Launching a Specialized Digital-Sīrah Journal

Establishing a peer-reviewed journal dedicated solely to digital projects on the Prophet’s biography. Sections may include “Semantic Analysis,” “Network Graphs,” “Qur’an–Sīrah Comparative Studies,” and “Digital Hermeneutics.”

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72 Berry, Understanding Digital Humanities.

#### 4. Suggested Pathways for Civilizational and Scholarly Dialogue Between East and West Based on Sīrah Data

##### 1. Bilateral Academic Projects

Establishing a consortium between Islamic universities (e.g., Qom, Al-Azhar) and Western institutions (e.g., Oxford, Heidelberg) to collaboratively author a Digital Encyclopedia of the Prophet’s Biography. Each chapter would be interactively composed based on shared data extraction tools.

##### 2. Virtual Conferences and Live Workshops

Hosting joint online “Summer Schools” on topics such as Digital Humanities and Islamic History, fostering experience-sharing between Eastern and Western scholars on digital methodologies and interpretive traditions.

##### 3. Oral Sīrah Documentation Project

Using video and metaverse technologies to record oral versions of the Sīrah as recounted in diverse communities (e.g., Nigeria, Malaysia, Turkey). These can then be digitally compared to broaden the socio-cultural understanding of the Prophet’s life.

##### 4. Interactive Qur’an–Sīrah Translation Platform

Developing a platform that synchronizes various translations of the Qur’an and the Sīrah, enabling both Muslims and non-Muslims to explore differences in translation and interpretation, and to engage in cross-cultural dialogue.

##### 5. Development of Educational Mobile Apps

Creating an application with “data-driven Q&A” functionality for the general public, which responds to common questions about the Sīrah and the Qur’an with direct references to digital databases—thus encouraging interfaith and intercultural conversation.

## The Role of Digital Encyclopedias in Reinterpreting the Prophet’s Biography and Qur’anic–Narrative Analysis

In the evolving field of Islamic studies, digital encyclopedias play a pivotal role in facilitating and deepening the study of the Prophet’s biography (Sīrah). These resources offer structured entries, advanced search tools, and thematic categorization, elevating cross-disciplinary analysis of prophetic data to a new level.

Unlike traditional sources that required labor-intensive navigation through dispersed texts, digital encyclopedias interconnect narrations, Qur’anic verses, individuals, and concepts, thus enabling “comparative, linguistic, and interpretive” analysis.

Key Western encyclopedic references in this domain include:

Encyclopaedia of the Qur’an<sup>73</sup>

Brill’s Encyclopaedia of Islam<sup>74</sup>

Oxford Islamic Studies Online<sup>75</sup>

These offer accurate entries on topics such as “Hijrah,” “Revelation,” “Prophetic Justice,” and “Prophetic Warfare,” supporting multilayered textual interpretations.

Additionally, features like regex-based search, semantic mapping, keyword extraction, and parallel version comparisons make it possible for scholars to access a well-structured and reliable knowledge network with ease.

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73 McAuliffe, Encyclopaedia of the Qur’an.

74 Name, “Article Title.”

75 Oxford University Press, “Oxford Islamic Studies Online.”

Table 3: Comparative Study of Leading Digital Encyclopedias in the Analysis of the Prophet's Biography and the Qur'an

Encyclopedia Name	Publisher	Features	Strengths in Sīra Studies
Encyclopaedia of the Qur'an	Brill (2001–2006)	Verse-based entries, linguistic analyses, references to classical sources	Lexical analysis of sīra-related concepts in the Qur'an
Oxford Islamic Studies Online	Oxford University Press	Thematic search, geographic categorization, multilayered articles	Examination of key figures and historical events in the Prophet's life
Brill's Encyclopaedia (of Islam (EI2/EI3	Brill	Historical-social analysis, civilizational-cultural perspectives	Comparative study of the sīra with non-Islamic sources
OpenITI	University of Maryland	Arabic text processing, digital annotation, data extraction	Linguistic analysis and narrator tracing in hadith literature
Qur'anic Arabic Corpus	University of Leeds	Morphological and syntactic parsing, root word mapping	Precise semantic analysis of Qur'anic verses related to the sīra

In the present research project, which focuses on data-driven digital analysis of the Prophet's biography and the role of the Qur'an, the aforementioned encyclopedias serve not only as reference libraries but also as active methodological tools.

As a result, leveraging digital encyclopedias of the Qur'an and hadith not only enhances the efficiency and accuracy of sīra studies, but also introduces an innovative framework for scholarly dialogue between East and West. These resources represent crucial steps toward the realization of digital Islamic humanities and should be ac-

tively integrated into the design of both local and international research initiatives<sup>76</sup>.

The digitization of prophetic biography studies offers an exceptional opportunity to revisit religious and historical sources through precise, rapid, and interdisciplinary approaches. However, the success of this method hinges on maintaining a balance between quantitative analysis and qualitative comprehension of religious texts and indigenous culture. When the Qur'an is perceived as a "living text" and the sīra as a "historical-ethical source," a new horizon of civilizational dialogue between Muslims and Western scholars can be opened, offering a multifaceted and insight-based portrayal of the Prophet Muhammad (peace be upon him).

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<sup>76</sup> Sharafat, "A Review of the Compilation Process of Qur'anic and Hadith Encyclopedias Authored by Orientalists."

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