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Digital Economy

Emerging Technologies and Business Innovation

9th International Conference on Digital Economy, ICDEc 2024
Rabat, Morocco, May 9–11, 2024
Proceedings, Part I

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Preface

The rapid pace of digitalization and technological innovation is ushering in profound economic and societal changes. This ongoing digital transformation, accelerated by the advent of artificial intelligence, big data, and robotics, presents both opportunities and challenges for all stakeholders in society. From a managerial perspective, the top strategic e-commerce technologies can be categorized into eleven groups: cloud, blockchain, mobile technologies, internet of things, information and communication technologies, IT services, security, platforms, artificial intelligence, data analytics, and decision support systems [1].

Recent studies indicate that the global digital transformation market, valued at USD 695.5 billion in 2023, is projected to reach USD 3144.9 billion by 2030, growing at a compound annual growth rate of 24.1% from 2024 to 2030 (www.marketsandmarkets.com). This digital revolution is reshaping organizations across the board, redefining economic models, professions, corporate cultures, and work organization. Digital transformation fosters agility and resilience but managing this shift and determining the factors for successful transformation pose significant challenges.

The International Conference on Digital Economy (ICDEc) serves as a crucial platform for researchers and experts to discuss and dissect the multidisciplinary processes and implications of digital transformation. The ninth edition of the conference (ICDEc 2024) was held at the Faculty of Law, Economic and Social Sciences (FSJES – Souissi), Mohammed V University, Rabat, Morocco, from May 9 to 11, 2024. The conference brought together over 70 researchers and professionals from 24 countries, who shared 43 research papers, insights, best practices, and lessons learned, fostering the development of academic and professional networks.

The event featured two keynote presentations, a data analysis workshop, and 12 parallel sessions where 43 papers were presented (38 in person and 5 online). Discussions during scientific sessions and cultural outings enriched the participants' understanding of digital transformation and facilitated excellent networking opportunities.

This volume, entitled "Digital Economy: Emerging Technologies and Business Innovation", compiles the communications presented at ICDEc 2024. Selected through a rigorous double-blind review process by at least two reviewers from the 117 papers submitted, these proceedings cover a wide range of topics and contexts, offering the latest research and perspectives on digital transformation. This volume is a valuable resource for academics, policymakers, and practitioners, contributing significantly to the series of ICDEc proceedings published in the series Lecture Notes in Business Information Processing (LNBIP) by Springer since 2017 [2–8].

The ICDEc conference collaborates with the Journal of Telecommunications and the Digital Economy (JTDE), having published two special issues in June 2022 and March 2024, featuring 12 and 23 papers, respectively [9, 10].

We extend our gratitude to all contributors to the event, particularly the reviewers whose dedication and expertise ensured the quality of the selected articles. Their insights

have been instrumental in enhancing the value of this conference. Special thanks go to the keynote speakers, session chairs, authors, the organizing committee, and the hosting organization (FSJES – Souissi, Mohammed V University, Rabat, Morocco) for their invaluable contributions to the event's success.

We hope this volume of proceedings serves as a source of information and inspiration for future generations of researchers and academics in the field of the digital economy.

June 2024

Mohamed Anis Bach Tobji
Rim Jallouli
Hicham Sadok
Kaltoum Lajfari
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Does Religiosity Matter? An Indonesian Experience in Building Awareness and Developing Sharia E-Commerce

Sulistiyowati¹ , Heru Muara Sidik¹ , Mulyadi¹ , Hadiyati Munawaroh¹ , Rafika Nur Zakiyyah¹ , Suci Wulandari² , Komalawati² , Rizky Prayogo Ramadhan² , Pihri Buhaerah² , and Irwanda Wisnu Wardhana²

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Abstract. In an era of technological progress, exploring the nexus between technology and religious practices, especially concerning Sharia e-commerce platforms, holds paramount importance. The study aims to investigate how religiosity impacts the awareness and development of Sharia e-commerce in Indonesia. This survey encompassed 714 Muslim respondents from diverse demographics in Indonesia, the biggest Muslim country. The data analysis employed descriptive statistics. The survey found that more than 90% of respondents identified as smartphone users and used digital wallets for online shopping. The survey highlighted a striking discrepancy between recognizing technology's potential in supporting religious practices and actively engaging with Sharia-compliant e-commerce platforms. Therefore, the religiosity seems to be mattered in cognition and awareness, but it does not matter to customers' preferences on using Sharia e-commerce platforms. Integrating Sharia products into conventional e-commerce platforms is better compared to developing Sharia e-commerce platforms exclusively. The integration of the current e-commerce players with halal-certified brands, religious institutions, or community organizations can strengthen the visibility and credibility of Sharia values in e-commerce.

Keywords: religiosity · sharia e-commerce · technology

1 Introduction

In a rapidly advancing technological landscape, the intersection of technology and religious customs is becoming increasingly significant [1]. This is particularly evident in the relationship between religious adherence and the evolving digital marketplace in the world's most populous Muslim countries yet secular, where Sharia rules are adopted based on personal preferences. In the Indonesian context, this synergy of faith and commerce through technology is at the forefront of Sharia e-commerce evolution voluntarily [2]. By definition, Sharia e-commerce platforms are not merely commercial spaces but environments where transactions comply with Islamic jurisprudence, ensuring that all

trade activities meet the ethical and moral standards set forth in the Quran and Hadith [3].

Adherence to Sharia principles in e-commerce encompasses several dimensions, including the prohibition of *Riba* (interest), the avoidance of *Gharar* (uncertainty) in transactions, and ensuring that products are *Halal* (permissible) [4]. These principles are crucial for maintaining the integrity of Islamic commerce and are a testament to the increasing demand for platforms that can reconcile modern shopping habits with religious obligations [5, 6]. Therefore, it is essential to understand how technology can facilitate and align with religious practices, particularly within the framework of Sharia [7].

Sharia e-commerce platforms represent a fusion of traditional religious principles with contemporary technological solutions [3]. These platforms offer a unique space where individuals can engage in commercial activities while adhering to the tenets of Islamic law. By providing services and products that comply with Sharia principles, such as halal certification and interest-free financing options, these platforms cater to the specific needs and preferences of Muslim consumers. Consumer behavior towards product choices, which is a manifestation of religious teachings, cannot be separated from the influence of religiosity [8, 9].

For many Muslim consumers, the decision to engage with an e-commerce platform is predicated not only on convenience and cost but also on how well it aligns with their religious values [10]. In this regard, the concept of *Tawarruq* online, a Sharia-compliant financial instrument, becomes relevant, illustrating the complex interplay between financial services and religious norms within the online commercial sphere [11]. Furthermore, the emergence of Sharia e-commerce platforms underscores the broader trend of digital transformation within religious communities [3]. As more aspects of daily life become digitized, religious institutions and practices are also adapting to this new paradigm [12]. This includes embracing technology to facilitate religious rituals, disseminate religious knowledge, and foster community engagement. However, the integration of technology and religious practices also raises important questions and challenges. It necessitates careful consideration of ethical, cultural, and legal implications, particularly to issues such as data privacy, online security, and the preservation of religious authenticity.

In essence, the exploration of the nexus between technology and religious practices, particularly within the context of Sharia e-commerce platforms, is emblematic of the ongoing dialogue between tradition and innovation [13]. This study seeks to bridge the current knowledge gap by investigating how religiosity impacts the awareness and development of Sharia e-commerce in Indonesia.

The ensuing literature review will contextualize these intersections by examining the extant scholarly dialogue on Sharia rules in digital commerce, the influence of Islamic jurisprudence on consumer behavior, and the adaptation of religious practices to online environments. Through this examination, the research will contribute to the ongoing discourse on the role of religiosity in technology adoption and e-commerce development.

2 Literature Review

Islamic law, known as Sharia, encompasses a wide range of regulations governing various aspects of life, including social, economic, and legal matters. The manifestation of Sharia rules in regional regulations plays a significant role in managing social morality [14]. The discourse surrounding Sharia rules involves critical analysis of the form, message, and motives behind these regulations [15]. In the context of business and finance, Sharia rules are increasingly applied in areas such as e-commerce and peer-to-peer lending, reflecting the need for economic innovation within society [2]. Moreover, adherence to the rules of Islamic Sharia can influence the acceptance and success of e-procurement in organizations [16].

Despite being a Muslim-majority country, Indonesia is not an Islamic state. It is constitutionally a secular state whose government officially recognizes several religions. Therefore, the implementation of Sharia rules is not enforced to either individuals or institutions. However, the Sharia practices is developing in commerce, banking, and business. As an illustration, the implementation of Sharia rules applied to areas such as auditing practices in Zakat institutions, where adherence to Sharia standards is essential for professional qualifications [17]. The Islamization of the economy in Indonesia involves a transition from politics to law, focusing on developing a conducive regulatory framework to support Sharia economics [18].

Additionally, the development of Islamic inheritance law in Indonesia reflects a blend of customary practices and Sharia principles to meet the needs of Indonesian society [19]. The legal system incorporates elements of Sharia and fiqh, highlighting a unique blend of Islamic legal traditions [20]. The Indonesianization of Islamic law concepts aims to harmonize Sharia principles with national laws, reflecting a nuanced approach to legal integration [21].

Overall, the literature on Sharia rules underscores the multifaceted nature of Islamic law and its application in various domains, ranging from finance and business to social and legal frameworks. The synthesis of these references provides insights into the complexities and nuances of Sharia rules and their impact on contemporary societies.

3 Research Method

3.1 Data Collection

The data collection method was carried out in June-August 2023 through a computer-assisted self-interviewing (CAPI) system using an online platform. Respondents use electronic devices to respond to interview questions using the CAPI system itself. The survey objectives guided the structure of the questionnaire, which included both closed and open-ended items. The data collected were: respondent characteristics, knowledge and perceptions on Sharia E-Commerce Platforms. A Likert scale is used for closed questions with the value ranging between one and four (1 = strongly not agree; 2 = unagree; 3 = agree; 4 = strongly agree or 1 = strongly unbelieve; 2 = unbelieve; 3 = believe; 4 = strongly believe).

This research questionnaire was distributed to 1,000 Muslim respondents spread across several regions through online platform. Of the 1,000 respondents, there were

714 Muslim participants who filled in all the questions or 71.4% of the total respondents (response rate). The remainder were excluded from the sample due to incompleteness in filling out the questionnaire. All respondents represent the Indonesian population, selected from various regions across Indonesia through sampling from 29 provinces.

3.2 Data Analysis

By encompassing respondents from various regions, socio-economic backgrounds, and age groups, the survey aimed to capture a comprehensive snapshot of perspectives and experiences related to the utilization of Sharia e-commerce platforms and the influence of technology on meeting religious obligations within the Indonesian Muslim community. To meet the objective of this study, descriptive statistics for data analysis is employed. One of the main reasons is descriptive statistics is a useful tool to organize and summarize vast amounts of data for appropriate interpretation [22, 23]. Statistic descriptive is still fundamental and meaningful in statistical analysis to serve as a foundation for further analysis, although it is a simple method of summarizing data [24].

This approach also provides a systematic approach for summarizing and interpreting the characteristics of a dataset. Using descriptive statistics, we may summarize, illustrate, and describe the key characteristics of the sample [25]. By analyzing the survey responses through descriptive statistics, we can identify the frequency of the data, thus offering valuable insights into the attitudes, behaviors, and preferences of the surveyed population. Also, in terms of the range of interpretability, descriptive analysis is more interpretable than inferential statistics as it relies on complex statistical models and calculations.

4 Results and Discussions

4.1 Profile of Respondents

Distribution by Age and Gender

The results of data processing show that the majority of respondents have varying ages from young to old, with the average age of respondents being 40.29 years. Meanwhile, the youngest respondent was around 18 years old and the oldest was 84 years old. The very varied age ranges in filling out the questionnaire provide an overview of the representation of various age segments. The very diverse age variations also show the potential for the use of e-commerce Sharia which may not be limited to certain ages. Previous research showed that the development of the digital economy in Sharia products has encouraged the generation Z to become interested in using Sharia e-commerce [26].

Apart from age, the majority of respondents (55.2%) were female, and the remainder (44.8%) were male (Fig. 1). According to Marsasi and Barqiah [27], age and gender are two factors driving consumers to use Sharia products, apart from education. The benefits of Sharia products are more influential for male consumers, but privacy and trust in Sharia products influence women more [28].

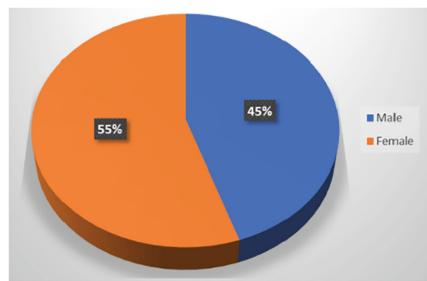


Fig. 1. Gender Characteristics of Respondent

The data provide a comprehensive view of attitudes towards religious practice. A large proportion of respondents (97.1%) agree or strongly agree with the belief that they have practiced religious guidance correctly. This indicates there is a strong sense of adherence to religiosity aspect in the surveyed population.

Geographic Representation

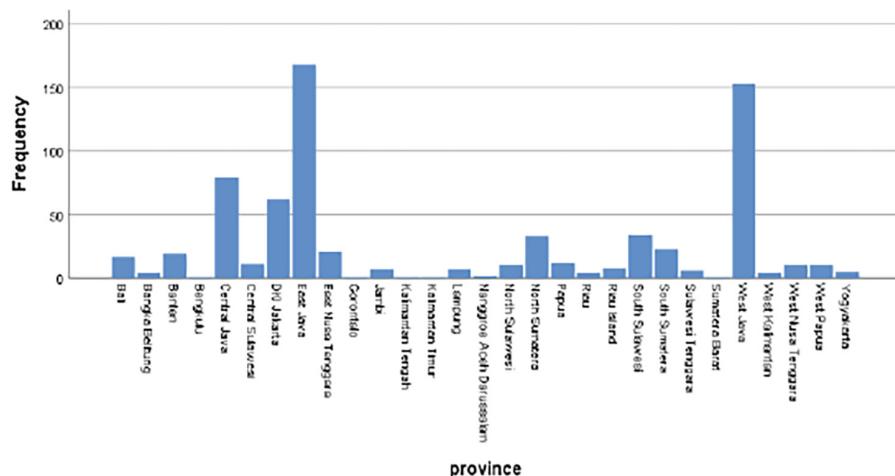


Fig. 2. Geographic Representation

Figure 2 illustrates the distribution of respondents representing different regions in Indonesia. The majority of Muslim respondents come from East Java, West Java, followed by Central Java and DKI Jakarta. Meanwhile, the majority of respondents outside Java came from South Sulawesi, North Sumatra and West Nusa Tenggara, Gorontalo, Bali and various other areas outside Java. The high distribution of Muslim respondents who are willing to fill out the Sharia e-commerce questionnaire can be an indication of increasing public interest in Sharia e-commerce products. This is in line with the previous research resulted that the increasing welfare of society in Indonesia has increased religious feelings and public interest in using Sharia products [29].

4.2 Knowledge on Sharia E-Commerce Platforms

Understanding of E-Commerce

Table 1 shows that a majority of respondents either understand (72.7%) or understand very well (16.1%) the term “e-commerce”. This indicates a high level of comprehension among the surveyed population regarding the concept of e-commerce. A smaller proportion of respondents reported either not understanding (10.4%) or finding the term not very clear (0.8%). This suggests that there is a minority of respondents who may have some difficulty grasping the concept of e-commerce or are less familiar with it.

Table 1. Level of Understanding of E-Commerce

		Number of Respondents	Percent	Valid Percent	Cumulative Percent
Valid	Not very clear	6	.8	.8	.8
	Do not understand	74	10.4	10.4	11.2
	Understand	519	72.7	72.7	83.9
	Understand very well	115	16.1	16.1	100.0
	Total	714	100.0	100.0	

Awareness of Sharia E-Commerce Platforms

The provided data concerns the awareness of Sharia e-commerce platforms among respondents (Table 2). The majority of respondents (77.6%) indicated that they are not aware of the existence of Sharia e-commerce platforms for online shopping. Conversely, a smaller proportion of respondents (22.4%) reported being aware of these platforms. This data indicates that there is a significant lack of awareness among the surveyed population regarding Sharia e-commerce platforms. The majority of respondents seem to be unaware of the availability of these platforms for online shopping.

Table 2. Concerns The Awareness of Sharia E-Commerce Platforms

		Number of Respondents	Percent	Valid Percent	Cumulative Percent
Valid	Not Aware	554	77.6	77.6	77.6
	Aware	160	22.4	22.4	100.0
	Total	714	100.0	100.0	

4.3 Perceptions of Sharia E-Commerce Platforms

Influence of Religiosity on Platform Utilization

The provided data pertains to the perceptions of Sharia e-commerce platforms regarding the influence of religiosity on platform utilization (Table 3). The majority of respondents either agree (65.4%) or strongly agree (30.5%) that technological advancement and digitalization support and enhance their way of fulfilling religious obligations. This suggests that a significant portion of users perceive Sharia e-commerce platforms as beneficial for facilitating their religious practices and obligations. This is evident in the previous research where religiosity plays a significant role in the decision of customers to choose Islamic banks [30]. Religiosity has an impact on purchasing intentions, especially regarding halal products [31], and encouraging environmentally friendly behavior among Muslim communities in Indonesia [32]. Regarding Sharia e-commerce, it is stated that religiosity is a key factor in shaping attitudes towards its use, thereby influencing individuals' intentions to engage with the platform [33].

On the other hand, a smaller percentage of respondents either disagree (3.2%) or strongly disagree (0.8%) with the statement. This indicates that some users do not perceive technological advancements and digitalization as supportive of their religious duties, although their proportion is relatively low compared to those who agree or strongly agree.

Table 3. Perceptions of Sharia E-Commerce Platforms Regarding the Influence of Religiosity on Platform Utilization

		Number of Respondents	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	6	.8	.8	.8
	Disagree	23	3.2	3.2	4.1
	Agree	467	65.4	65.4	69.5
	Strongly agree	218	30.5	30.5	100.0
	Total	714	100.0	100.0	

Believe in Sharia Compliance

The provided data concerns the level of belief in Sharia compliance among users of Sharia e-commerce platforms (Table 4).

Aligning e-commerce practices with Sharia principles is critical to meeting the needs of Muslim consumers globally [34, 35]. In the Indonesian context, ensuring compliance with Sharia is very important to build trust among consumers in markets where the majority of the population is Muslim [33]. The overwhelming majority of respondents either believe (78.6%) or strongly believe (17.6%) that they trust Sharia e-commerce platforms to conduct their business processes and activities in accordance with Islamic law. This indicates a high level of confidence and trust among users in the Sharia compliance of these platforms. Only a small percentage of respondents either disbelieve (3.6%) or strongly disbelieve (0.1%) with the statement, suggesting that trust issues regarding Sharia compliance are relatively minimal among the surveyed population.

Table 4. Perception in Sharia Compliance Among Users of Sharia E-Commerce Platforms

		Number of Respondents	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disbelieve	1	.1	.1	.1
	Disbelieve	26	3.6	3.6	3.8
	Believe	561	78.6	78.6	82.4
	Strongly believe	126	17.6	17.6	100.0
	Total	714	100.0	100.0	

4.4 Usage Frequency and Preferences

Online Shopping Experience on Sharia E-Commerce Platforms

According to the data (Table 5), it is clear that the majority of respondents (86.3%) have never shopped online on Sharia e-commerce platforms. Only 13.7% of respondents have used these Sharia platforms for online shopping. This indicates that there is still not widely adopted or used for online shopping among the respondents surveyed. It indicates that other several factors such as limited awareness or availability of Sharia e-commerce platforms, preferences for traditional shopping methods, or trust issues may influence online transactions on these platforms.

Table 5. Online Shopping Experience on Sharia E-Commerce Platforms

		Number of Respondents	Percent	Valid Percent	Cumulative Percent
Valid	Never	616	86.3	86.3	86.3
	Ever	98	13.7	13.7	100.0
	Total	714	100.0	100.0	

Preferences for Sharia-Based Payment Services

Data showed that there is a notable preference for Sharia-based payment services among respondents (Table 6). Specifically, 22.3% of respondents prefer Sharia banking services for their transactions, while 18.3% prefer conventional banking services. A significant portion (59.4%) of respondents use both conventional and Sharia banking services for their transactions. This suggests that while there is a preference for Sharia-based services, a substantial portion of users still utilize conventional banking services, possibly due to factors such as convenience, accessibility, or specific features offered by conventional banks.

Fulfillment of Needs by Sharia E-Commerce Platforms

Based on the provided data on the fulfilment of needs by Sharia e-commerce platforms, it appears that the majority of respondents agree or strongly agree with the statement regarding the contribution to religious practices and rituals (Table 7).

Table 6. Preferences for Sharia-Based Payment Services

		Number of Respondents	Percent	Valid Percent	Cumulative Percent
Valid	Conventional Banking	131	18.3	18.3	18.3
	Sharia Banking	159	22.3	22.3	40.6
	Conventional and Sharia Banking	424	59.4	59.4	100.0
	Total	714	100.0	100.0	

Table 7. Respondents' Perception Regarding Level of Fulfillment of Needs by Sharia E-Commerce Platforms

		Number of Respondents	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	3	.4	.4	.4
	Disagree	35	4.9	4.9	5.3
	Agree	558	78.2	78.2	83.5
	Strongly agree	118	16.5	16.5	100.0
	Total	714	100.0	100.0	

Combining the percentages of those who agree and strongly agree, we find that approximately 94.7% of respondents hold a positive view towards the contribution of Sharia e-commerce platforms to religious practices and rituals. This indicates a strong sentiment among the respondents that these platforms indeed assist them in practicing religious behaviors in their daily lives.

4.5 Religiosity in Shaping Awareness and Fostering the Development of Sharia E-Commerce

Despite respondents' generally strong understanding of e-commerce concepts, the data reveals a significant gap in awareness regarding Sharia e-commerce platforms. This means that while individuals understand the broader idea of online commerce, they lack specific knowledge about platforms that follow to Sharia principles. This suggests a need for comprehensive educational initiatives to familiarize potential users with the existence and benefits of Sharia-compliant e-commerce platforms. Such efforts could include targeted advertising, educational campaigns, and partnerships with religious institutions to raise awareness within the community.

The overwhelming agreement (95.9%) among respondents regarding the positive impact of technology on religious practices underscores a strong preference toward embracing digital solutions within the context of belief. This indicates not only a willingness but also an enthusiasm among individuals to leverage technological advancements to enhance their religious obligations.

Furthermore, the high level of belief (96.2%) in the Sharia compliance of e-commerce platforms suggests a deep-seated confidence among consumers in the integrity and adherence to Islamic principles by these platforms. This trust is likely influenced by factors such as transparent business practices, certifications from religious authorities, and clear communication of Sharia compliance policies.

Additionally, the preference for Sharia banking options (81.7%) underscores a broader trend among consumers to align their financial transactions with Islamic principles. Integrating Sharia-compliant payment solutions within e-commerce platforms could enhance the overall appeal and accessibility of these platforms to individuals seeking to uphold their religious values in all aspects of their online shopping experience.

Despite lower awareness and utilization rates, the overwhelming majority of users (94.7%) who engage with Sharia e-commerce platforms report significant benefits in fulfilling their religious needs. This suggests that for those who are aware of and utilize these platforms, they serve as valuable tools for integrating religious practices into their daily lives. Whether through offering a wide range of halal products, facilitating zakat payments, or adhering to ethical business practices, Sharia e-commerce platforms play a crucial role in supporting individuals' religious observance and values.

5 Conclusion

We found that the religiosity matters in cognition and awareness, but it does not matter to customers' preferences on using Sharia e-commerce platforms. Although Sharia platforms are seen as beneficial, actual usage is limited, suggesting a disconnect between positive perceptions and real-world adoption. The findings highlight a significant gap in awareness and utilization of the platforms among consumers. Therefore, from the findings, we may suggest that the best option is not to develop Sharia e-commerce platforms exclusively but to integrate Sharia products into conventional e-commerce platforms. Integrating the current e-commerce players with halal-certified brands, religious institutions, or community organizations can strengthen the visibility and credibility of Sharia values. This research applicability cannot be generalized to represents all Muslim-majority countries, thus, future research should employ broader analytical methods and cross countries study.

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