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Innovation through Literacy: Synthesizing Science and the Qur'an (SSQ) as a Strategy for Islamic Economic Development

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ABSTRACT

This study aims to explore the interrelation between innovation and literacy, proposing an integrated model of scientific and Qur'anic literacy as a strategic pathway for Islamic economic development. Employing a qualitative library research method, this research analyses a broad spectrum of literature—including books, academic journals, blog articles, and relevant documents—using keywords such as innovation, literacy, synthesis, science, Qur'an, and Islamic economic development. The study also references case examples such as innovations in bottled drinking water and the printed Qur'an.The findings of this study are presented in the form of conceptual framework, which demonstrates that innovation is rooted in creativity, and creativity in turn originates from literacy. In the context of Islamic economic development, innovation is not solely grounded in the Qur'an and Hadith but also draws upon scientific literacy. While conventional theories continue to be employed within the scope of Islamic economic development. This study helps the Islamic economic actors find creative ideas and problem solving by synthetizing science and the Quran (SSQ) and provides updated literacy conducive to innovation in Islamic economy development.

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INTRODUCTION

Innovation fundamentally stems from literacy, which in this context extends beyond the basics acts of reading, writing, and comprehension. In the framework of innovation, scientific literacy refers to the ability to pragmatically apply scientific knowledge to everyday life, (Fives et al., 2014). Central scientific literacy is the capacity for critical thinking, (Manassero-Mas & Vázquez-Alonso, 2022), a core skill set indispensable to future-oriented business practices such as creativity, innovation, opportunity recognition, decision-making, (Skrzek-Lubasińska & Malik, 2023), competitiveness, employability (Altinyelken, 2021), consumer decision behaviour, (Nakanishi et al., 2023). Questioning forms an integral part of critical and creative thinking as well as problem-solving competencies, (Cuccio-Schirripa & Steiner, 2000). Consequently, scientific literacy is vital in the innovation process, especially as it pertains to economic development.

A range of scholarly literature discusses themes related to innovation. Schumpeter identified innovation as a product of creativity and a key driver of economic development, (Arsyad, 2004, p. 74). Innovation underpins economic growth, (Omar, 2019), in both developed and developing nations, (Barrichello et al., 2020). Human capital as a pivotal determinant of innovation performance globally, (Costa, 2023). In the 21st century, innovation is recognized as a crucial element, (McLaughlin & McLaughlin, 2021), rooted in creativity and driven ideas that yield practical, economy-stimulating solutions, (Marczewska et al., 2024). Efforts to cultivate creative ideas and innovation may leverage artificial intelligence (AI), (El-Sayed et al., 2025), albeit with certain limitations, (Zirar, 2023). Providing employees with leisure time has emerged as an alternative strategy for generating creative ideas, especially in the context of rising training costs, (Medase & Savin, 2024). The implementation of design thinking which entails a distinct, context-specific cognitive process has also been recommended, (Rösch et al., 2023). Additionally, some studies argue that innovative behaviour is the direct outcome of an innovative mindset, (Jaaffar et al., 2024).

In contrast to arguments that position innovation as the primary driver of economic development, other scholarly perspectives highlight ethics as a core engine of economic growth. According to these views, the socio-economic backwardness experienced by many Muslim societies is largely attributable to a decline in ethical standards, (Raies, 2022). Ethics play a significant role in enhancing societal welfare, (Kader, 2021) and has a demonstrable impact on economic growth, (Ibrahim, 2018). Furthermore, innovation is understood to serve as a mediating variable between ethical strategies and economic performance, (Abdulaziz-Alhumai dan & Khan, 2024). Religious belief systems contribute to the planning and development of innovation, (Liao et al., 2024). Faith-based product design has been shown to influence consumer purchasing decision, (Yen, 2023). While poverty alleviation can be addressed through the more equitable distribution of goods and services, (Daly, 2014). Within the framework of Islamic economic development, ethics is emphasized not only at the individual level but also at the collective level of the community, (Hakim et al., 2020). It is also noted that much of human creativity can be channelled toward malevolent ends, (McLaren, 1993), with

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unethical innovation contributing adversely to economic structure, (Roshankar & Keyvanpour, 2025).

To arrive at a holistic understanding of innovation, a conceptual framework that integrates ethics is required. This study introduces the term synthesis as a principal component in the conceptualization of innovation. One method for generating both intellectual and material knowledge is through synthesis., (Bensaude-Vincent, 2024). Synthesis refers to the process of combining distinct elements, (Mahaputera et al., 2013), to create something new, (Kauppinen et al., 2024). Innovation, encompassing changes in products, processes, or service, (Amir, 2014), often emerges from synthesis, which is closely aligned with the notion of creativity—namely, the integration of diverse ideas, concepts, unique traits, and various forms of information to generate novel outcomes, (Bahri, 2021, p. 197).

The term synthesis frequently appears innovation-related literature and academic research. High order thinking processes related to creativity are situated within Bloom's taxonomy, (Pickard, 2017) wherein synthesis represents a key cognitive skill. Discovery, development, duplication and synthesis in Kuratko's innovation theory, (Frederick et al., 2007). Synthesis is in systematic literature review methodologies for understanding design thinking and professional practice, (Schlott, 2024). Economic synthesis in familial hypercholesterolemia, (Wang et al., 2024). The importance of economy and environment through the synthesis, (Amiri-zirtol & Gholami, 2024). the groundbreaking work of Kariko, whose synthetic manipulation of proteins played a crucial role in the development of the COVID-19 mRNA vaccine, (Deák et al., 2023). Green synthesis, (Jadhav & Kokate, 2021; Poonia et al., 2025; Suganthi AR et al., 2025). The tenn "synthesis" refers to integration and incorporation, (Barile et al., 2023; I. Mahmood et al., 2024; Passmore & Tee, 2024; Singh & Singh, 2025; Subri et al., 2021). One of the products with various psychological contents for the consumer is bread, (Ertosun et al., 2024). The employee training requires various insights, (Choopani et al., 2024). The definition of synthesis and conjunction indicator such as "and", (Aziz et al., 2023; Karmanto et al., 2021; Oktaviana & Setiawan, 2022; Rifai & Hakim, 2022)

This study adopts the concept of synthesis to integrate findings from various strands of literature, using the keywords outlined in the research title. Two illustrative examples of innovation are presented in this study: the innovation of the printed Qur'an (Qur'anic manuscript) and bottle drinking water. Both examples are analysed through the theoretical lenses of Schumpeter and Kuratko to examine the extent to which these theories contribute to a comprehensive understanding of innovation. Some practitioners argue that business focusing solely on product innovation risk falling behind. In contrast, innovations that synthesize multiple types of innovation are considered to offer greater benefits, (Bogetoft et al.,2024). Accordingly, innovation derived from literacy—particularly synthesized literacy—can be better understood as a process aligned with the goals of Islamic economic development.

Fundamentally, this research seeks to reach a deeper understanding of innovation through literacy synthesis by combining theoretical insights, conceptual foundations, and explanatory frameworks that contribute to improving the quality of life of individuals and communities. This aligns with the core definition of Islamic economic development, which emphasizes economic prosperity aimed at enhancing the welfare of the population, (Huda,dkk, 2015,p.1), framed within Islamic economic principles.

The structure of this study is organized as follows: the first section explores the relationship between innovation and literacy within the framework of Islamic economic

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development. The second outlines the research method, including the process selecting key literature to guide further exploration and synthesis in understanding innovation. The third section presents the research findings, followed by analysis and conclusion.

RESEARCH METHOD

This study employs a qualitative approach drawing upon textual and documentary sources as primary data, (Moleong, 2016). Library research functions as both the setting and method of inquiry, (Bungin,2020). The data analysis is guided by established definitions of qualitative data analysis techniques which involve organizing sequences of data, finding patterns and categories, (Afifuddin & Saebani, 2009, p. 145), filtering and synthesizing key information, and deciding what should be communicated, (Moleong, 2016). Systematic process of data retrieval and organization to enhance the understanding of the collected material, (Emzir,2010, p.85), to draw meaningful conclusions regarding the relationship between innovation, literacy, and Islamic economic development.

Figure.1 the Research Process

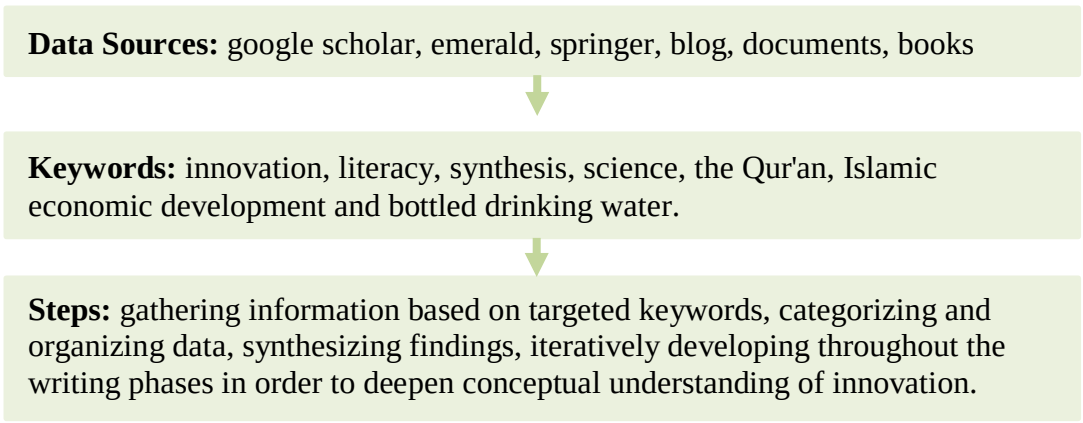

Table.1 the Data Collection Phases

Keywords	Literature
Innovation	
Problem, innovation	Blog article, (Wikipedia, 2025), Journal (Rasyid et al., 2023)
Creativity, innovation, individual	Journal, (Perez-Luño et al., 2024; Sole et al., 2020; Speckbacher, 2021)
Business to innovation	Journal,(Lara Machado et al., 2023)
Combination of creativity	Journal,(Medase & Savin, 2024)
Design thinking	Journal, (Rösch et al., 2023)
Applied research and innovation	Journal (Vetoshkina et al., 2023)
Collaboration increase innovation	(Maija Hero & Lindfors, 2019)
Competitive advantage.	(Foster et al., 2024)
Definition of innovation	Document Law No. 11 of 2019
Theory of innovation, product development	Books, (Frederick et al., 2007; Simamora, 2007)

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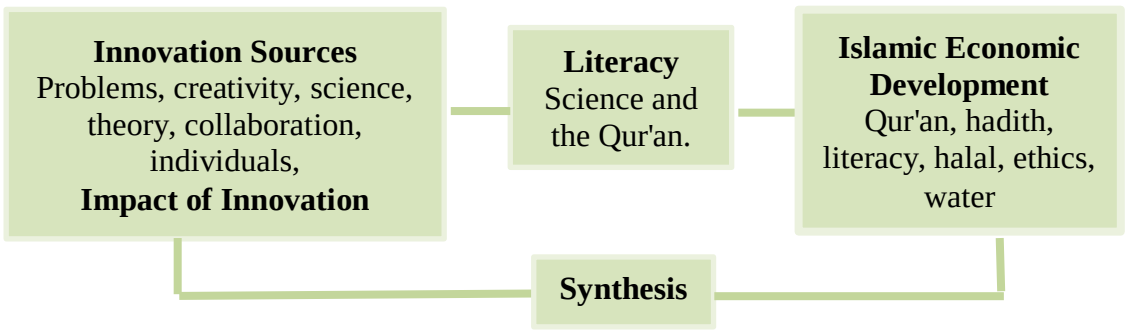
Literacy: Science and Qur'an	
Definition of science	Book, (Wonorahardjo, 2020)
Think critically, create innovation	Journal, (Sanjiartha et al., 2024)
Compatible with modern science	Journal, (Kasmo et al., 2015)
Integrating science and the Quran	Journal, (Mukri et al., 2019)
Innovation of the mushaf Qur'an	Journal, (Purnawan, 2020)
Government attention	Blog articles,(Muhammad, 2021)
Individual, creativity, innovation	Books, (Alma & Juni Priansa, 2014; Darmalaksana, 2020; Dhewanto et al., 2014; P3EI, 2008; Padmadewi & Artini, 2018)
Synthesis: definition of synthesis	Journal, (Brauer, 2021; Hart, C, 2018)
Bottled Drinking	
Employment opportunities	Journal, (Parewa et al., 2024)
Halal-certified drinking water	Proceeding, (Wibisono et al., 2018)
Several brands of drinking water	Blog article, (Amin, 2023)
Islamic Economic Development	
Literacy is the foundation of innovation	Blog article,(Kompasiana.com, 2023)
Literacy and developed countries	Blog article, (Institute, 2024)
Knowledge one of the production factors	Journal, (Abualoush et al., 2018; Ştefan et al., 2024)
Water resources are asset	Journal, (Lu et al., 2023)
Role of government in innovation	Journal, (Ulinnuha, 2024)
Individual as the center of attention	Journal,(P. Zasa et al., 2022)
10 countries with high literacy rates	Blog article, (Fatika, 2024)
Creativity, innovation, halal verses and water	(Grove, 2017; Hosain, 2021; Karia & Deng, 2025; Mohd Raffi & Musfirah Musli, 2023; Soon & Manning, 2019; Surjandari et al., 2025)

Figure 2. the Data Grouping Phases



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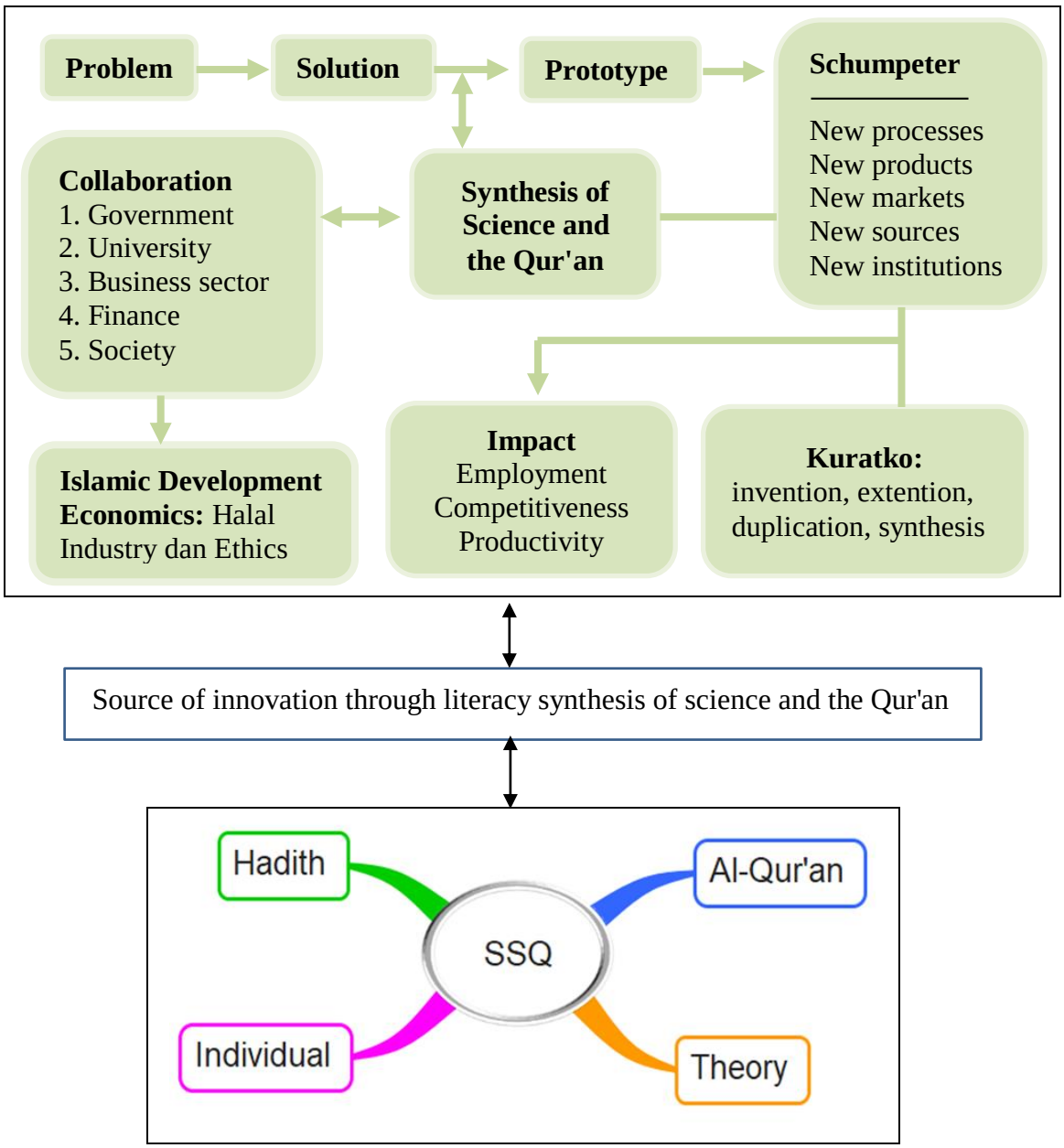
RESULTS AND DISCUSSION

The discussion is divided into two main parts. The first part elaborates on the synthesis of science and the Qur'an as a form of literacy. The second part discusses innovation in relation to the theories of Schumpeter and Kuratko.

Figure 3. The Conceptual Model of Innovation in Islamic Economic Development



Part one: Synthesis of Science and the Qur'an (SSQ) functions as a key object of literacy within Islamic economic development. This synthesis reflects an integrative literacy model, exemplified by the confluence of Qur'anic revelation and modern scientific knowledge, (Kasmo et al., 2015). Its conceptual branches extend toward Hadith

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and design thinking theory, (Darmalaksana, 2020). the Qur'an serves as the foundational basis for Islamic economics, (P3EI, 2008), while the Hadith offers operational guidance for its implementation, (Alma & Juni Priansa, 2014). These Quran and hadith terms were also found in previous studies, (Iqbal et al., 2013; Islam et al., 2021; Julia et al., 2016; Prince & Wahid, 2023; Rahmati et al., 2022; Tlemsani et al., 2020)

Scientific terminology is notably present in halal-certified bottles drinking water, (Putri, 2024). The label halal is grounded in Qur'anic injunctions, while water as a substance involves principles from the field of chemistry, (Mahmud & Arafah, 2020). Much of the discourse on halal products—such as food and beverages—focuses on biological sciences, (Haleem et al., 2020), Innovation in the halal sector necessitates the integration of scientific theories, (Pradana et al., 2024), science likewise plays a critical role in the development of halal cosmetic products, (Gurmen et al., 2024), Challenges in the halal industry can be addressed through what may be termed halal science, (Amid, 2024). These findings position science not merely as a tool, but as an object of literacy essential to the development of the Islamic economy.

The role of individual within this synthesized literacy framework is crucial. Creativity—widely recognized as the foundation of innovation, (Perez-Luño et al., 2024; Sole et al., 2020; Speckbacher, 2021). It is the individual who conceives creative ideas and engages in higher order thinking processes, (Dhewanto et al., 2014). Creativity involves cerebral processes that result in the production of novel goods or service, (Amir, 2014). Every individual acquires knowledge through literacy, which encompasses reading, speaking, writing, and critical thinking, (Padmadewi & Artini, 2018). Each of these components highlights the centrality of the individual. An economic perspective, the individual remains a focal point of development strategies, (Chi et al., 2024; Kumcu, 2025; P. Zasa et al., 2022; Yu & Jiang, 2024)

Several bodies of literature corroborate the interrelationship between innovation, literacy, and economic development, thereby reinforcing the findings of this study. Literacy is widely recognized as a contributing factor in poverty alleviation, (Pham & Riedel, 2019). China has positioned education as a key instrument in breaking the cycle of poverty, (Ju et al., 2021). . In the pursuit of becoming a globally competitive or nation, intangible assets—specifically, human—are considered vital, (Sedarmayanti et al., 2020). The continual generation of ideas is a foundational driver of sustained economic growth, (Kuncoro, 2010, p. 6). Research has also identified a direct correlation between innovation and literacy, (Alanazi, 2025; Faria et al., 2024; Firmansyah & Dede, 2022; Haubrock et al., 2024; Jaskyte et al., 2024; Palmer & Giering, 2024; Zhang, 2025)

The present findings align with the perspectives of Ibn Khaldun, who advocated for an interdisciplinary synthesis of knowledge within his model of economic development, (W Mahri et al., 2021). They also resonate with Umer Chapra's assertion, (Arikha, 2022) that conventional economic theories need not be entirely dismissed. Innovation performance, according to these views, requires a robust knowledge base, research and development (R&D), (Bate et al., 2023), international collaboration in the domain of science, (Gürak, 2024). Other studies further affirm the role of science education as a driver of innovation, (Tijani & Adeduyigbe, 2025; Woo, 2024).

Part two. Schumpeter defines innovation as encompassing five dimensions: new products, new processes, new markets, new sources of input, and new institutional forms, (Frederick et al., 2007, p. 100) . His theory provides a valuable framework for understanding the innovation behind the compilation of the mushaf (written Qur'anic text). Historically, the verses of the Qur'an were not codified into a single volume.

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However, when the Prophet Muhammad's companions witnessed the death of numerous Qur'anic memorizers (hafiz), the urgency to compile the verses into one coherent book gave rise to a novel idea, (Rasyid et al., 2023). This innovation in codification not only ensured the preservation of the Qur'an but also contributed to the emergence of key concepts in Islamic economic life, such as halal. This research adopts the innovation of Qur'anic compilation as a foundational case for understanding innovation in Islamic development. In Indonesia, innovation in the mushaf have continued to evolve, now reflected in diverse aspects such as cover design, size, script, (Akbar, 2011) and additional features like color-coded tajwid rules, (Purnawan, 2020)

The term halal, which appears in the Qur'an, (Hosain, 2021), serves as a textual and conceptual guide for Muslims and has been actualized in the form of the halal industry. Innovation here tales on new meanings—either internally, for the innovating enterprise, or externally, in contract to pre-existing models, (Simamora, 2007, p. 411). For example, despite having a relatively small Muslim population, China has developed a distinct segment within the halal industry, targeting new markets Misalnya, (Karia & Deng, 2025). In Indonesia, the establishment of halal certification bodies represents institutional innovation, as do organizations dedicated to Qur'anic literacy and education, as do organizations dedicated to Qur'anic literacy and education, (Muhammad, 2021; Surjandari et al., 2025). Furthermore, new methods and sources utilized in the design and publication of mushaf editions serve as platforms for creativity and innovation, guided by the Qur'anic injunctions related to halal living.

Switzerland, widely recognized as one of the most innovative countries, attributes much of its success to a robust education and research system, (Fatika, 2024). A prominent level of scientific literacy is a fundamental prerequisite for any nation striving toward innovation, (Gao et al., 2016). Malaysia has harnessed scientific advancement to fuel its economic growth, (Ismail, 2018). Within the Qur'an, the imperative "Iqra'" (Read) signifies not merely the act of reading but extends to the domain of research, (Maisyarah & Amalih, 2023). Knowledge is, therefore, a vital component in the innovation process, (Foster et al., 2024), the linkage between research and development (R&D), and innovation is well established,(Abdul Basit et al., 2022; Fayyaz & Bartha, 2025) Universities, in this context, play a pivotal role in promoting innovation, (Al Qahtani & Sankar, 2025; Laufer et al., 2025; Vetoshkina et al., 2023).

This study identifies a critical convergence between R&D, literacy, and the Qur'anic command Iqra,' presenting a model that synthesizes the characteristics of literacy prevalent in developed countries with those found in Muslim-majority societies. It demonstrates knowledge through literacy with powerful thinking process for problem solving and innovation, (Abdul Basit et al., 2022; Çavuş et al., 2025; English, 2023; Eticha et al., 2024; Theophilus Adeosun & Ibrahim Shittu, 2022) The research affirms that collaboration enhances innovation,(Maija Hero & Lindfors, 2019; Maldonado & Pinzón, 2023); business entities function as enablers innovation, (Lara Machado et al., 2023); and public participation in scientific research increases its practical relevance and societal benefit, (Hall et al., 2024). One manifestation of collaboration between the state and its sectors is scientific knowledge production. thereby positioning innovation as a multidisciplinary activity, (Wahono & Abdullah, 2010); and a strategic tool for Islamic economic development.

The next innovation framework employed in this study is drawn from Kuratko's model, with a focus on bottled drinking water as a case example. Water is considered a strategic asset in economic development,(Liu et al., 2025; Lu et al., 2023). Kuratko

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identifies four essential activities in the innovation process: discovery, development, creative replication, and synthesis, (Frederick et al., 2007, p. 114). In an article linked; creativity is the act of turning new and imaginative idea into reality. Invention is creation of a new idea or concept. Innovation is turning a new concept into commercial success of widaspread use, (Castellote, 2018; (European Commission), 2018).

A relevant Qur'anic reference can be found in Surah Az-Zumar (39:21), in which water is highlighted as a symbol of life and divine provision.In the Qur'an Qs, 39:21, (Afifah, 2022). This reference can be interpreted in conjunction with innovations in the bottled water industry. In Indonesia, the case of Aqua—a pioneering brand in the bottled water market—serves as a prominent example. The founder of Aqua was inspired to innovate after witnessing someone drinking water that had not undergone proper sanitation, (Wikipedia, 2025). This led to the creation of a new prototype: bottled water designed to ensure safer, more accessible hydration for the general population. This invention marked a breakthrough in providing clean drinking water and established a new standard in water distribution practices in the country. Bottled drinking water is embraced as a way to reach the United Nations Sustainable Development Goal target. Even small-scale bottled water sales businesses have been operating from refill kiosks, (Lyne, 2020).

In today's technological era, bottled water has evolved beyond its traditional form, giving rise to smart water bottles that remind users to hydrate at regular intervals, (Poddar et al., 2024). The initial discovery and development of bottled drinking water has since led to a proliferation of replica products. Kuratko offers a parallel in the food industry, where replication is exemplified by chains like Pizza Hut and Pizza Parlour, (Frederick et al., 2007, p. 114). Similarly, the bottled water industry is experiencing a surge in latest brands, some of which pose challenges related to product authenticity. Counterfeiting of food and beverage products is rife, (Soon & Manning, 2019), production of low-quality goods, the rise of markets for imitations and shoddy goods, and dishonest trading practices, question of authenticity, the aspect of product quality related to whether products are what they claim to be, (Grove, 2017). To address such challenges, this study integrates Qur'anic literacy into the discourse on innovation. Individual obedience to divine commands, as conveyed in the Qur'an, is shown to have economic implications, (Mukri et al., 2019; Raies, 2022)

In this study, the synthesis of bottled water innovation refers to the integration of scientific principles and Islamic foundations. Producers who recognize the needs of consumers adopt strategic economic practices by implementing halal certification in bottled water products, (Putri, 2024). Another of synthesis is the harmonization of Sharia principles and science in water purification systems, which ultimately support individual health and well-being, (Mohd Raffi & Musfirah Musli, 2023). This integration ofscientific principles and Islamic foundation in bottled drinking water is supported by a study with different context. The aquatic products, (Ahmed et al., 2025), halal drugs and food, (Abualsunun et al., 2024; Adekunle & Filson, 2020; Alzeer & Hadeed, 2021; Prince & Wahid, 2023), mixed marketing and maqasid, (Rifai & Hakim, 2022) Islamic behavior and conventional bank, (Ghosh, 2023), halal tourism and Islam, (Abbasian, et al., 2024; Ahamed Suban et al., 2023; Fawzi Afifi et al., 2021)

From a logical standpoint, any successful innovation involves both financial and non-financial capital. Financial capital, for instance, may be allocated to purchase raw materials for bottled water purification or printing equipment for Qur'anic manuscripts. Non-financial capital encompasses research, knowledge absorption, collaboration with governmental bodies, and supply chain management, (Hidayat & Pok, 2025). The

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emergence of halal-certified products exemplifies the economic impact of Qur'anic innovation—creating employment opportunities and stimulating productivity within the halal industry. Likewise, the bottled water innovation contributes to job creation, (Parewa et al., 2024), and opens new avenues for competitive advantages,(Foster et al., 2024; Twumasi et al., 2025), For producers, adherence to Islamic economic principles yields public benefit, including both material utility (derived from scientific knowledge) and spiritual blessings (because of Qur'anic literacy), (P3EI, 2008).

CONCLUSION

This study underscores the centrality of innovation in understanding the relationship between literacy and Islamic economic development. Based on a synthesis of diverse scholarly works, two case studies—Qur'anic manuscript innovation and bottled drinking water—reveal that innovation is fundamentally rooted in literacy, which serves as the foundation of creativity. Accordingly, this study proposes synthesized literacy—a blend of scientific and Qur'anic knowledge—as a strategic model for Islamic economic development. Scientific literacy serves to inform innovation, while Qur'anic literacy provides an ethical foundation. Moreover, conventional innovation theories remain relevant and applicable within the context of Islamic economic development, aligning with intellectual traditions of Ibn Khaldun and Umer Chapra. Future research is encouraged to explore the application of synthesized literacy in innovation through frameworks such as design thinking.

This study is limited to the criteria of key words that do not disclose the criteria of company, location, and year consistently. Further study is suggested to conduct field research to observe the model or re-examine the consistency of science and Quran synthesis (SSQ).

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