ISLAM AND TECHNOLOGY: BRIDGING THE GAP FOR SUSTAINABLE DEVELOPMENT

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Abstract
The nexus between Islam and technology facilitates giant's avenue for promoting sustainable growth and development in any given society without prejudice to religions, race, ethnics and traditions. This study explores the extent to which Islamic principles influence the use and ethical integration of technology and how it can maximally harness to enhance social, economic and environmental sustainability. The aim of this paper is to examine the relationship between Islam and technology for sustainable development in North-Central,. A stratified random sampling technique was used to select 721 Islamic education scholars, students and educational technologists and to ensure that all the respondents were represented across the profession, educational background and locale. The data were gathered using structured questionnaires tagged "Questionnaire on Islam and Technology for Sustainable Development (QITSD) and semi-structured interviews tagged "Interview on Islam and Technology (IIT). Similarly, the quantitative data were analyzed using descriptive statistics and inferential statistical tools of Chi-square and regression analysis. Also, the qualitative data were analyzed using thematic content analysis. The findings of the study revealed that Islamic teachings strongly promote knowledge and innovations but lack of digital resources and awareness were the problems facing the integration of technology within the tenets of Islam. The study concluded that the use of technologies within the Islamic ethical values can significantly enhance sustainable development. It is recommended that Islamic ethical education should be integrated in technological trainings, and policies should be designed that would promote ethical innovation that is strongly within the Islamic principles for sustainable development in North-Central, Nigeria.

Keywords: Islam; Technology; Sustainable Development; Integration; Islamic ethics; Digital Resources.

Introduction
In the contemporary world, technology has emerged as the central driver of economic growth, social transformation, and environmental management. From digital innovations and biotechnology to artificial intelligence and renewable energy, technological advancements are reshaping global societies and offering unprecedented opportunities for sustainable development (Coccia, 2021). However, in many Muslim-majority nations, the relationship between Islam and technology

remains contested, oscillating between enthusiastic adoption, cautious engagement, and occasional resistance rooted in socio-cultural and religious interpretations. This paradox has created a gap that needs to be bridged to fully harness technology within the framework of Islamic principles for sustainable development.

Moreover, technology refers to the application of scientific knowledge, skills, tools, and methods to solve problems and improve human life. It is not limited to computers and digital devices but encompasses every innovation that makes human existence more efficient, productive, and meaningful (Bustinza, 2022). From the earliest stone tools and agricultural techniques to modern artificial intelligence, biotechnology, and renewable energy systems, technology has always played a central role in shaping civilizations. It influences how people communicate, travel, trade, learn, govern, and interact with their environment (Kelly & Taddy, 2021).

From an Islamic perspective, technology is viewed as a gift and trust from God, to be used responsibly for the welfare of humanity. The Qur'an encourages reflection on nature, exploration of the universe, and acquisition of knowledge, which forms the basis of scientific and technological advancement. Islamic principles such as stewardship (*khalifah*), justice (*'adl*), and moderation (*wasatiyyah*) emphasize that technology should serve human dignity, promote social justice, and protect the environment (Nurhaeni & Hardini, 2021).

Historically, Muslim scholars made groundbreaking contributions in mathematics, medicine, astronomy, and engineering, demonstrating how faith and science can work in harmony. Technology is an indispensable force shaping modern societies and future possibilities. When guided by ethical principles such as those found in Islam, it becomes a tool for achieving sustainable development that balances material progress with spiritual, social, and environmental well-being (Arzroomchilar & Olamaiekopaie, 2022).

However, many Muslim societies face significant challenges in aligning technological advancement with Islamic principles. A major issue is the absence of clear ethical guidelines for evaluating modern technologies, including artificial intelligence, biotechnology, and digital platforms, through Islamic perspectives (Fatoni & Sukari, 2024). This gap often leads to confusion, resistance, or delayed adoption, limiting developmental benefits.

Poor integration between Islamic teachings and technological policies further impedes progress, as policymakers frequently overlook principles of justice and stewardship, preventing technology from serving both material and moral objectives (Mar, 2024). Limited technological literacy and unequal access to digital infrastructure create digital inequality, particularly in rural and underdeveloped regions, widening socio-economic gaps and undermining inclusive development (Freeman & Middleton, 2020). Weak institutional support, bureaucratic inefficiencies, and fragile governance structures discourage investment in innovation, leaving technological integration slow and fragmented (Meier & Wimpy, 2019).

Therefore, this study seeks to address these challenges by investigating the role of Islamic ethical principles in guiding the adoption and use of modern technology in Muslim societies. It examines the perceived challenges that hinder the integration of technological innovations within Islamic frameworks of development, explores the relationship between technological literacy and sustainable development in Muslim-majority communities, and assesses how religious leaders and scholars influence public perceptions of technology in the context of Islamic teachings.

Correspondingly, the research addresses questions on how Islamic ethical principles shape technology adoption, what obstacles prevent effective integration of innovations within Islamic development frameworks, the link between technological literacy and sustainable development, and the role of religious authorities in shaping public attitudes toward technology. By examining these dynamics, the study aims to provide insights into bridging the gap between faith and technology, enabling Muslim societies to harness innovation for development that is socially inclusive, morally guided, and sustainable.

On the other hand, Islam is a comprehensive religion and way of life revealed to Prophet Muhammad (peace be upon him) in the 7th century through the Qur'an, the final divine scripture. It is not merely a set of rituals but a holistic system that governs spiritual, moral, social, political, and economic aspects of human existence. The word “Islam” itself means submission to the will of Allah, and its central message is peace, justice, and guidance for humanity. Muslims are called to live according to the teachings of the Qur'an and the Sunnah (traditions of the Prophet), which together provide a framework for personal conduct and communal harmony (Ikhwan & Fauzi, 2019).

At its core, Islam emphasizes the oneness of God (*tawhid*), which forms the foundation of faith and practice. Belief in Allah's guidance motivates Muslims to pursue righteousness, compassion, and fairness in all aspects of life. Worship in Islam goes beyond prayer, fasting, or charity; it extends to everyday activities carried out with sincerity, responsibility, and adherence to divine principles. For instance, honesty in business, kindness in social relations, and stewardship over the environment are considered acts of worship when performed with the right intention (Rahman, 2024).

Knowledge holds a central place in Islam. The Qur'an repeatedly encourages reflection, inquiry, and exploration of the natural world. Verses such as “Are those who know equal to those who do not know?” (Qur'an 39:9) underline the importance of learning and intellectual growth. Historically, the Islamic Golden Age stands as clear evidence of this harmony between faith and science (Renard, 2023).. Between the 8th and 14th centuries, Muslim scholars made groundbreaking contributions in fields such as medicine, mathematics, astronomy, architecture, and engineering. Figures such as IbnSina (Avicenna), whose medical texts shaped European education for centuries; Al-Khwarizmi, the pioneer of algebra; and Al-Jazari, the innovator of mechanical engineering, reflect the deep integration of Islamic principles with scientific progress. Their works did not exist in isolation but were grounded in an Islamic worldview that saw knowledge as a trust (amanah) to be used for the benefit of humanity and in service to Allah. This era not only propelled Muslim civilization to global prominence but also laid the foundations for modern science and technology (Abdelgalil, 2023).

Ethics form the backbone of Islam. Values such as justice (*'adl*), moderation (*wasatiyyah*), compassion (*rahmah*), and accountability (*amanah*) guide Muslims in decision-making and interaction with the world. These principles are highly relevant in today's age of rapid technological change. They remind believers that while human beings have been entrusted as stewards (*khalifah*) of the earth, they must use knowledge and power responsibly to avoid harm, injustice, or excess (Santoso & Hardini, 2021).

Also, Islam is both a faith and a civilization that seeks to balance spiritual fulfillment with worldly responsibilities. It provides guidance not only for personal salvation but also for building just, inclusive, and progressive societies. Its teachings on knowledge, ethics, and stewardship make it deeply relevant in discussions on technology and sustainable development in the modern era (Abubakari & Triantini, 2023).

Conversely, technology offers powerful tools to advance Islamic goals of social justice and collective well-being. Digital platforms enhance access to education and knowledge, healthcare innovations improve survival and quality of life, and renewable energy technologies align with the Qur'anic call to avoid wastefulness and preserve creation (Apriani & Avionita, 2021). In the realm of poverty reduction, technology can provide sustainable livelihoods through agricultural innovations, microfinance systems, and digital marketplaces that empower marginalized communities. Similarly, climate resilience strategies supported by technology such as early warning systems, sustainable water management, and green infrastructure echo the Islamic principle of protecting the environment as part of one's duty to God (Bawazir, 2019).

The synergy between Islam and technology therefore offers a holistic pathway toward a development model that is both innovative and value-driven. By embedding ethical considerations into technological progress, Muslim societies can ensure that advancements serve humanity rather than harm it. This integration strengthens the idea that modern development does not require abandoning tradition; instead, it calls for aligning innovation with timeless spiritual and moral guidance (Ariyanto, 2025).

In conclusion, bridging the gap between Islam and technology provides not only an opportunity but also a necessity for sustainable development. It enables Muslim communities to embrace innovation confidently, while safeguarding justice, equity, and stewardship as guiding principles for progress. This study, therefore, seek to explain Islam and technology: bridging the gap for sustainable development.

Statement of the Problem

In today's rapidly advancing world, technology plays a central role in driving innovation, improving livelihoods, and shaping pathways toward sustainable development. While Islam, as a comprehensive way of life, encourages knowledge, ethical responsibility, and social justice, many Muslim societies struggle to fully integrate technological progress within Islamic frameworks. This has created a gap where the benefits of modern technology are not maximized due to ethical hesitations, cultural concerns, or structural limitations. The lack of synergy between faith-based values and technological innovations often slows economic growth, weakens social inclusion, and reduces environmental stewardship in Muslim communities. Bridging this gap is therefore critical to ensuring that technology supports development in ways consistent with Islamic values of justice, moderation, and stewardship.

One of the major problems is the absence of clear ethical guidelines for technology in Islam. Many Muslim societies lack well-developed frameworks to evaluate modern technologies such as artificial intelligence, biotechnology, and digital platforms through Islamic ethical principles. This gap often results in confusion, resistance, or delayed adoption, thereby limiting developmental benefits.

Another issue lies in the poor integration between Islamic teachings and technological policies. Policymakers in Muslim-majority countries frequently fail to incorporate Islamic values of stewardship (*khalifah*) and justice (*'adl*) into technology-related policies. As a result, technology is prevented from serving both material progress and spiritual or moral goals. Limited technological literacy further compounds the challenge. Restricted access to education and training in advanced technologies creates digital inequality within Muslim societies. This deficiency prevents communities from fully participating in the opportunities offered by the digital economy and innovation-driven growth.

Another significant problem is unequal access to digital infrastructure. A major obstacle is the uneven distribution of technological resources across Muslim-majority countries, where rural and underdeveloped regions often remain disconnected from vital systems such as the internet, renewable energy, or digital health solutions. This inequality widens socio-economic gaps and undermines the Islamic principle of justice (*'adl*), which calls for inclusive development.

Lastly, weak institutional support for innovation remains a pressing issue. Many Muslim-majority countries suffer from fragile institutions and inadequate governance structures that fail to nurture technological progress. Bureaucratic inefficiencies, corruption, and lack of policy continuity discourage investment in innovation that could advance sustainable development. Without strong institutions guided by ethical values, the integration of technology into society remains slow, fragmented, and unable to achieve its full potential.

Purpose of the Study

The objectives of the study focus on Islam and technology: bridging the gap for sustainable development. The specific objectives are to:

i. investigate the role of Islamic ethical principles in guiding the adoption and use of modern technology in Muslim societies.
ii. examine the perceived challenges that hinders the integration of technological innovations within Islamic frameworks of development.
iii. explore the relationship between technological literacy and sustainable development in Muslim-majority communities.
iv. assess how religious leaders and scholars influence public perceptions of technology in the context of Islamic teachings.

Research Questions

i. What role do Islamic ethical principles play in guiding the adoption and use of modern technology in Muslim societies?
ii. What challenges hinder the integration of technological innovations within Islamic frameworks of development?
iii. How does technological literacy relate to sustainable development in Muslim-majority communities?
iv. In what ways do religious leaders and scholars influence public perceptions of technology in the context of Islamic teachings?

Bridging Islam and Technology for Sustainable Development

The integration of Islam and technology for sustainable development offers a unique opportunity to harmonize modern innovations with timeless ethical values. Islamic teachings emphasize principles such as stewardship (*khalifah*), justice ('*adl*), and moderation (*wasatiyyah*), which provide a moral compass for guiding the application of technology toward societal benefit. These values closely align with the core pillars of sustainable development economic growth, social equity, and environmental protection offering an ethical framework for responsible innovation. By grounding technological advancement in Islamic ethics, societies can redirect technology away from exploitation, excess, and environmental harm, ensuring that its benefits serve collective well-being and long-term sustainability (Khan & Falahat, 2025).

Historically, Islamic civilization thrived at the intersection of faith and science, producing remarkable achievements in fields such as medicine, astronomy, mathematics, and engineering. This legacy demonstrates that Islam is not inherently opposed to technological progress; rather, it provides guidance for the ethical and constructive use of knowledge. The advancements of the past

illustrate how spiritual and intellectual pursuits can coexist, enabling societies to generate innovations that improve the quality of life while upholding moral responsibility. In the contemporary world, technology plays an indispensable role in addressing global challenges, including poverty alleviation, healthcare improvement, access to education, and climate resilience. However, the absence of ethical frameworks can result in unintended consequences, such as digital inequality, environmental degradation, and moral dilemmas in emerging fields like artificial intelligence, biotechnology, and genetic engineering (Yasmeen & Yasmin, 2024).

Bridging Islam and technology in today's societies requires deliberate efforts to embed spiritual values into innovation. This begins with education, where curricula in Muslim-majority countries must emphasize both scientific literacy and ethical reasoning. Equipping students with knowledge and moral discernment ensures that future generations can harness technology responsibly. Simultaneously, policymakers and institutional leaders must integrate Islamic principles into the design, implementation, and regulation of technological systems, ensuring that adoption prioritizes justice, equity, and environmental stewardship. By doing so, technology becomes a tool for inclusive growth, capable of addressing social disparities, improving public services, and mitigating ecological harm. Furthermore, fostering public awareness through religious leaders and scholars can help align societal perceptions of technology with ethical imperatives, promoting a culture in which innovation complements, rather than conflicts with, spiritual values (Khan & Haneef, 2022).

Also, the integration of Islam and technology creates a development model that balances material advancement with moral accountability. It provides a framework for leveraging modern innovations in ways that enhance human welfare, protect the environment, and ensure social equity (Islam, 2025). By embedding Islamic ethical principles into the design, use, and governance of technology, societies can achieve progress that is not only economically and scientifically significant but also morally and socially responsible. In conclusion, bridging Islam and technology enables the creation of a sustainable development paradigm that safeguards prosperity and well-being for both present and future generations, ensuring that technological growth aligns with the ethical and spiritual values that have long guided human civilization.

Ethical Principles of Islam in Technology Adoption and Innovation

Islam provides a strong ethical foundation that guides human interaction with knowledge, innovation, and resources. In the context of technology adoption and innovation, Islamic ethical principles serve as a compass to ensure that modern advancements are used responsibly and for the benefit of humanity. Central to these principles is the concept of stewardship (*khalifah*), which entrusts humankind with the responsibility to use resources wisely and protect the environment. This principle emphasizes that technological progress should not lead to exploitation or destruction but should instead promote balance and sustainability (Siddiqi & Dallal, 2024).

Another critical value is justice (*'adl*), which requires fairness and equity in how technology is developed and distributed. This ensures that innovations do not deepen social inequalities but rather create opportunities for all, particularly marginalized groups. Moderation (*wasatiyyah*) also plays a vital role, guiding against excessive use or harmful applications of technology. For instance, while digital platforms can enhance education and healthcare, their misuse for unethical practices such as fraud or misinformation goes against Islamic teachings (Harunoğullari, 2025).

Additionally, Islam emphasizes the pursuit of beneficial knowledge (*'ilm*), encouraging Muslims to engage with science and technology while filtering innovations through ethical and moral lenses. This means that emerging fields such as artificial intelligence, biotechnology, and renewable energy should be evaluated not only for their efficiency but also for their moral and social impact (Alsheddi, 2020).

In conclusion, the ethical principles of Islam provide a framework for adopting and innovating technology in ways that support justice, sustainability, and human dignity, ensuring development that aligns with both faith and progress (Megdadi, 2021).

Strengthening Islamic Education for Science and Technology Integration

Islamic education has historically been at the forefront of knowledge, combining faith with scientific inquiry to produce innovations that shaped global civilization. In the contemporary era, however, many Muslim societies struggle to integrate science and technology effectively into their educational systems, often separating religious studies from modern scientific disciplines. This separation creates a gap that weakens the capacity of Muslim communities to compete in the global knowledge economy while maintaining their religious identity (Hidayat & Arifin, 2020).

Strengthening Islamic education for science and technology integration requires a balanced approach where both religious and modern knowledge are harmonized. The Qur'an repeatedly urges reflection, observation, and exploration of nature, highlighting that scientific inquiry is not separate from spiritual growth but a complementary act of worship. Embedding science and technology within Islamic curricula would therefore reinforce the idea that pursuing innovation is not only permissible but also a religious duty when directed toward societal benefit (Hanafiah, 2025).

Additionally, equipping Islamic schools and universities with modern laboratories, digital tools, and skilled educators would foster an environment where faith-driven innovation thrives. This integration would prepare students to contribute to fields such as renewable energy, biotechnology, and artificial intelligence, while ensuring that their work remains ethically grounded in Islamic values. Furthermore, promoting interdisciplinary learning can help future generations bridge the gap between tradition and modernity, making them active contributors to sustainable development (Latifah & Tamam, 2024). In conclusion, strengthening Islamic education by integrating science and technology is essential for producing knowledgeable, ethical innovators who can advance sustainable development while preserving Islamic values.

Barriers to Technology Adoption in Muslim Perception

The adoption of modern technology within Islamic contexts has often faced barriers arising from socio-cultural, ethical, and institutional factors. While Islam itself encourages the pursuit of knowledge and innovation, its practical integration into Muslim societies is sometimes hindered by misinterpretations of religious teachings. Some conservative perspectives view certain technologies, particularly in areas like biotechnology or artificial intelligence, as conflicting with Islamic principles, creating hesitation or resistance toward their use (Yasin & Helmi, 2025).

Another barrier is the limited level of technological literacy in many Muslim-majority communities. Insufficient access to quality education, weak infrastructure, and digital divides between urban and rural areas restrict the ability of people to benefit fully from technological innovations. This inequality widens the gap between technologically advanced nations and Muslim societies, making it difficult to compete in the global economy (Ali & Rusgianto, 2024).

Policy and governance issues also play a significant role. In many cases, technology-related policies in Muslim-majority countries are not adequately aligned with Islamic ethical frameworks. This lack of integration creates confusion and reduces public trust in adopting innovations. Additionally, reliance on imported technologies without contextual adaptation to Islamic cultural and ethical values often results in limited acceptance and sustainability (Momtaheni, 2020).

Financial constraints further compound the problem. Limited investment in research, development, and infrastructure slows the capacity of Muslim societies to build indigenous technologies that

reflect their values and needs (Muneeza & Isa, 2023). In conclusion, overcoming these barriers requires a holistic approach that integrates Islamic ethics with education, policy, and investment to ensure technology adoption supports sustainable development.

Islamic Education and Technological Advancement

Islamic education has historically been a cornerstone of intellectual and scientific progress, particularly during the Golden Age of Islam when scholars integrated Qur'anic teachings with scientific inquiry to produce innovations in medicine, mathematics, astronomy, and engineering. However, in contemporary times, Islamic education in many societies has become narrowly focused on religious studies, often neglecting the integration of modern science and technology. This limited approach reduces the ability of Muslim communities to participate actively in today's innovation-driven world (Fatoni & Sukari, 2024).

For technological advancement to flourish within Islamic contexts, education systems need to embrace a holistic model that combines religious knowledge with scientific and technical skills. By aligning curricula with Qur'anic calls for reflection and exploration, Islamic education can highlight that pursuing technological knowledge is not only permissible but also a religious obligation when it serves humanity's welfare. Furthermore, investments in digital infrastructure, modern laboratories, and teacher training are necessary to equip Islamic schools and universities with the tools needed for meaningful innovation (Amin, 2024).

Islamic education can also play a vital role in ensuring that technological progress remains ethically grounded. By embedding Islamic values such as justice (*'adl*), stewardship (*khalifah*), and moderation (*wasatiyyah*) into scientific studies, future innovators can be guided toward responsible and sustainable technological applications. This approach ensures that development is not only technologically advanced but also morally sound and socially inclusive (Syarifah & Taufiq, 2024). In conclusion, integrating modern science and technology into Islamic education is essential for fostering ethical innovation, enabling Muslim societies to contribute meaningfully to global sustainable development.

Future of Islam and Technology in Global Development

The future of Islam and technology in global development presents both challenges and opportunities. As the world moves rapidly into an era dominated by artificial intelligence, biotechnology, renewable energy, and digital economies, Muslim societies face the task of aligning these technological transformations with Islamic values. Rather than resisting change, the integration of faith-based ethics with technological advancement can position Islam as a guiding framework for sustainable and equitable progress (Kola-Aderoju, 2023).

One promising aspect is the ability of Islamic principles to provide moral and ethical direction in fields where unregulated technology poses risks. Issues such as data privacy, bioethics, climate change, and social inequality can be addressed through values of stewardship (*khalifah*), justice (*'adl*), and moderation (*wasatiyyah*). By applying these principles, Muslim communities can lead the global conversation on responsible innovation (Ravanbakhsh & Taqavi, 2020).

Moreover, the growing focus on the Sustainable Development Goals (SDGs) opens opportunities for Muslim nations to harness technology for poverty reduction, healthcare improvement, education, and environmental protection. With strong investments in research, digital literacy, and faith-based policy reforms, Islamic societies can actively contribute to solving global challenges while preserving cultural and religious identity (Raquib & Qadir, 2022).

Global collaborations also hold great potential. Partnerships between Muslim-majority countries and technologically advanced nations can foster knowledge exchange, innovation hubs, and shared projects that reflect both technical expertise and ethical responsibility (Alhammadi, 2024). Overall, the future of Islam and technology in global development depends on embracing innovation while embedding Islamic ethics, thereby ensuring that progress is both sustainable and value-driven.

Methodology

The quantitative method was used in this study. This method focus on numerical data and statistical analysis to generate data that can be generalized and practically verified. However, quantitative data is any data that is in numerical form such as statistics, percentages, etc. Quantitative data is data that can be counted or measured in numerical values. The researcher analyses the data with the help of statistics and hopes the numbers will yield an unbiased result that can be generalized to some larger population. The primary reason for choosing this method was its ability/capacity to gather quantitative data, which measurable and suitable for statistical analysis. Quantitative methods lead to the collection and analysis of numerical data used in understanding phenomena and drawing conclusions. While, data collection was conducted online through Google form, the sample size of 721 was selected from the population of Islamic education scholars, students and educational technologists, using stratified random sampling technique. The simple random sampling is a procedure of giving every subject in the population from which the sample was drawn an equal chance of being selected. The choice of the proportionate sampling technique was informed by the variation of the population of Islamic education scholars, students and educational technologists. This process enabled the researchers to give a fair representation of Islamic education scholars, students and educational technologists. Finally, method of data analysis used was descriptive analysis, this method involves the use of table histogram or data presented are analyzed in tabular form. It also involves the systematic arrangement of figures and facts in series of boxes made up of rows and columns.

Data analysis

Research question one: Do you agree that Islamic ethical principles play a role in guiding the adoption and use of modern technology in Muslim societies?

Table 1:

Role of Islamic Ethical Principles in Guiding the Adoption and Use of Modern Technology in Muslim Societies

Respondents	Frequency	Percentage (%)
Strongly Agreed	250	34.7
Agreed	190	26.4
Strongly disagreed	135	18.7
Disagreed	146	20.2
Total	**721**	**100**

Source: Field Survey, 2025

The table above shows that about 250 (34.7%) strongly agreed that Islamic ethical principles play a role in guiding the adoption and use of modern technology in Muslim societies, while 190 (26.4%) agreed with this view. On the other hand, 135 respondents (18.7%) strongly disagreed and 146 (20.2%) disagreed with the statement. From this indication, the majority of respondents strongly agreed that Islamic ethical principles play a role in guiding the adoption and use of modern technology in Muslim societies.

Research Question Two: Do you agree that there are perceived challenges that hinder the integration of technological innovations within Islamic frameworks of development?

Table 2:

Perceived Challenges that hinder the integration of Technological Innovations within Islamic Frameworks of Development

Respondents	Frequency	Percentage (%)
Strongly agreed	220	30.5
Agreed	185	25.7
Strongly disagreed	150	20.8
Disagreed	166	23
Total	**721**	**100**

Source: Field Survey, 2025

The table above shows that about 220 (30.5%) strongly agreed that there are perceived challenges that hinder the integration of technological innovations within Islamic frameworks of development, while 185 (25.7%) agreed with this view, 150 (20.8%) strongly disagreed and 166 (23.0%) disagreed with the statement. From this indication, the majority of respondents strongly agreed that there are perceived challenges that hinder the integration of technological innovations within Islamic frameworks of development.

Research Question Three: Do you agree that there is a relationship between technological literacy and sustainable development in Muslim-majority communities?

Table 3:

Relationship between Technological Literacy and Sustainable Development

Respondents	Frequency	Percentage (%)
Strongly agreed	210	29.1
Agreed	175	24.3
Strongly disagreed	160	22.2
Disagreed	176	24.4
Total	**721**	**100**

Source: Field work, 2025

The table 3 above shows that about 210 (29.1%) strongly agreed that there is a relationship between technological literacy and sustainable development in Muslim-majority communities, while 175 (24.3%) agreed with this view. However, 160 (22.2%) strongly disagreed and 176 (24.4%) disagreed with the statement. From this indication, the majority of respondents strongly agreed that there is a relationship between technological literacy and sustainable development in Muslim-majority communities.

Research Question Four: Do you agree that religious leaders and scholars influence public perceptions of technology in the context of Islamic teachings?

Table 4:
Influence of Religious Leaders and Scholars public perceptions of technology in the context of Islamic teachings

Respondents	Frequency	Percentage (%)
Strongly agreed	230	31.9
Agreed	180	25
Strongly disagreed	150	20.8
Disagreed	161	22.3
Total	**721**	**100**

Source: Field work, 2025

The table 4 above shows that about 230 (31.9%) strongly agreed that religious leaders and scholars influence public perceptions of technology in the context of Islamic teachings, while 180 (25.0%) agreed with this view. However, 150 (20.8%) strongly disagreed and 161 (22.3%) disagreed with the statement. From this indication, the majority of respondents strongly agreed that religious leaders and scholars influence public perceptions of technology in the context of Islamic teachings.

Discussion
Islamic ethical principles play a role in guiding the adoption and use of modern technology in Muslim societies. This finding aligns with the submissions of Montaheni, (2020), Al maainah, (2021), Raquib and Qadir (2022), and Syarifah and Taufiq (2024) who submitted that Islamic ethical principles influence the adoption and integration of modern technology in Muslim societies.At the same time, the principles of stewardship (khalifah), justice ('adl), and moderation (wasatiyyah) provide Islam with a unique ethical framework for guiding technological adoption in ways that support sustainable development. By integrating modern science and technology into Islamic education, strengthening policy alignment with ethical teachings, and investing in research and innovation, Muslim communities can overcome existing barriers. Furthermore, technology offers powerful tools to advance Islamic goals, including poverty alleviation, quality healthcare, education, environmental protection, and global equity.

There are perceived challenges that hinder the integration of technological innovations within Islamic frameworks of development. The finding of this study was in line with the submissions of Muneeza and Issa (2023), Ali and Rusgianto (2024), Amin (2024) and Yasin and Helim (2025) who in their study reported that policy and governance, financial constraints, limited investment in research, development, and infrastructure as well as host others are the perceived challenges facing the integration of technological innovations within Islamic framework.

There is a relationship between technological literacy and sustainable development in Muslim-majority communities. The finding of this study supported the submissions of Megdadi (2021) and Alshurideh & AlAwamleh, (2024) that there is correlation between technological literacy to foster sustainable growth and development.The relationship between Islam and technology reflects both the rich intellectual heritage of Muslim societies and the pressing need to address contemporary development challenges. Islam, as a comprehensive way of life, emphasizes the pursuit of beneficial knowledge, innovation, and ethical responsibility. The future of Islam and technology lies in creating synergy between faith and innovation. By embracing technology responsibly while grounding its application in Islamic values, Muslim societies can bridge the historical gap and contribute meaningfully to global sustainable development. In conclusion, Islam and technology are not opposing forces but complementary pillars that, when harmonized, can drive ethical and sustainable progress.

Religious leaders and scholars influence public perceptions of technology in the context of Islamic teachings. This finding corroborated the submissions of Kola-Aderoju, (2023) and Fatoni and Sukari, (2024) whose findings revealed that religious scholars can influence the perceptions of technology within the Islamic framework. Historically, Muslim scholars successfully merged faith with science to produce remarkable contributions that shaped global civilization. However, in the modern era, many Muslim-majority nations struggle to fully harness technological advancements due to misinterpretations of religious principles, inadequate educational frameworks, limited investments, and policy gaps. These barriers have hindered the ability of Muslim societies to benefit from the full potential of technology in addressing social, economic, and environmental challenges.

Recommendation

The following suggestions are recommended as follows:

1. Muslim-majority countries should integrate science and technology into Islamic education, ensuring curricula reflect both modern knowledge and Qur'anic principles, thereby fostering ethical innovation and preparing students for sustainable global development.
2. Policymakers should align technological policies with Islamic ethical values of stewardship, justice, and moderation, ensuring that innovation contributes to both material progress and spiritual growth within Muslim societies.
3. Religious leaders should actively engage with emerging technologies, offering guidance rooted in Islamic principles, to reduce resistance and promote responsible adoption that benefits communities socially, economically, and environmentally.
4. Governments should invest in research and innovation centers grounded in Islamic values, enabling the development of indigenous technologies that address local needs while upholding cultural and ethical identities.
5. Educational institutions should prioritize digital literacy programs in rural and urban areas, bridging the digital divide and empowering Muslim communities to participate fully in the global knowledge economy.

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