

THE ROLE OF USING ISLAMIC FINANCE TO BOOST INFRASTRUCTURE DEVELOPMENT FOR SUSTAINABLE ECONOMIC GROWTH

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Abstract:

This study aims to analyze the role of applying Islamic finance practices to boost investment in good and sustainable infrastructure, based on partnerships between the public and private sectors, and discusses the extent to which this contributes to achieving sustainable economic growth. Our study was based on a qualitative analysis of Islamic financial products and their uses for investment in infrastructure in a group of countries that are witnessing development in the Islamic financial industry, especially developing ones, as well as an analysis of the quantitative development of Islamic financial institutions and capital markets based on various indicators calculated regularly, in particular Refinitiv's IFDI Index and Islamic Capital Markets Product Ratings, analyzing the growth and evolution of Islamic financial industry assets, looking at all its sub-sectors, and reviewing their quantitative dimensions in terms of size and performance. In conclusion, we found that Islamic finance is a viable option for sustainable infrastructure development. With the right strategies, it can contribute to meeting investment needs and fostering inclusive growth. To support sustainable growth through Islamic finance, collaboration and innovation should be fostered by embracing standardization, innovation, and digitization. Knowledge about Islamic finance in infrastructure projects is also crucial.

Keywords: Islamic finance, infrastructure development, sustainable economic growth.

1. Introduction:

It is only in the past few decades that Islamic finance has emerged as a prominent actor in the global financial system, attracting the attention of researchers, decision makers and various players in the field of the Islamic financial industry, due to its ethical framework and unique concepts based on Islamic law and its distinctive principles that give priority to justice and equality in financial transactions. Islamic finance is remarkably consistent with the concepts of sustainable finance because it addresses pressing issues such as economic growth, poverty alleviation, wealth distribution, social integration, and environmental preservation. Islamic finance also has the ability to play a pivotal and important role in boosting infrastructure development towards achieving sustained economic growth.

Infrastructure development is crucial for sustainable economic growth, providing the foundation for a thriving business environment, efficient transportation networks, and access to basic services such as healthcare and education. However, traditional financing models often fall short of meeting the needs of infrastructure development due to various reasons, including high costs, lengthy approval processes, and limited access to capital. This is where Islamic finance can step in to bridge the financing gap and promote sustainable infrastructure development. Islamic finance offers unique features that make it well-suited for supporting infrastructure development. Firstly, Islamic finance is based on asset-backed transactions, which means that it is inherently linked to tangible assets such as infrastructure projects.

Secondly, Islamic finance promotes risk-sharing and ethical investment practices. This emphasis on risk-sharing encourages stakeholders to carefully evaluate infrastructure projects and ensures that investment decisions are made based on their economic, social, and environmental viability. Moreover, the ethical investment principles of Islamic finance discourage investing in projects that harm society or the environment, promoting sustainable infrastructure development that prioritizes social welfare and environmental protection.

Thirdly, Islamic finance offers various financing instruments that can be tailored to meet the specific.

However, Previous research on this topic have some limitations. Firstly, they often only consider a subset of variables, such as Islamic banks' deposits or sukuk issuance, which may not fully represent the overall impact of Islamic finance on economic growth. Secondly, most studies have been conducted in one particular nation or a small group of countries, making it difficult to extrapolate their findings to other markets.

To overcome these issues, recent research aims to use the overall Islamic Financial Development Indicator (IFDI)* as a proxy for Islamic finance. The IFDI measures various aspects of the Islamic financial sector, including quantitative growth, knowledge, corporate social responsibility (CSR), governance, and awareness.

Using a panel data set of 67 countries from 2012 to 2020, this study investigates the relationship between Islamic finance and economic growth. The findings indicate that Islamic finance does contribute to economic growth. This connection is more robust in Muslim majority and developing nations compared to non-Muslim majority and developed nations.

The practical implications of these findings suggest that regulators should focus on the development of Islamic finance to promote economic growth. Additionally, governments should take initiatives to raise public awareness of Islamic finance in order to increase its reach and accessibility.

* *IFDI is composite weighted index that measures the overall development of the Islamic finance industry. The information is comprehensively gathered from a universe of 136 countries and measured across more than 10 key metrics, including Knowledge, Governance, Sustainability and Awareness.*

From a social perspective, the study highlights that Islamic finance may have a more significant impact on socio-economic development in countries with a higher concentration of Muslim population and those in the developing stage. This emphasizes the potential role of Islamic finance in addressing socio-economic challenges and promoting inclusive growth in these regions.

What sets this study apart is its comprehensive sample size covering both Muslim and non-Muslim nations, as well as both developing and developed nations. Furthermore, it utilizes a more robust and comprehensive index of Islamic finance developed by Thomson Reuters.

Overall, Islamic finance presents an alternative financial system that adheres to Islamic principles and has the potential to contribute to economic growth and stability. By integrating Islamic financial principles into the overall financial system, countries can experience additional growth and lower economic volatility. To fully capitalize on the benefits of Islamic finance, it is recommended to expand the presence of Islamic banking, insurance, money market instruments, and capital market instruments to promote overall economic growth and control volatility (Paltrinieri, 2020), (Harahap, 2023), (Boukhatem, 2018).

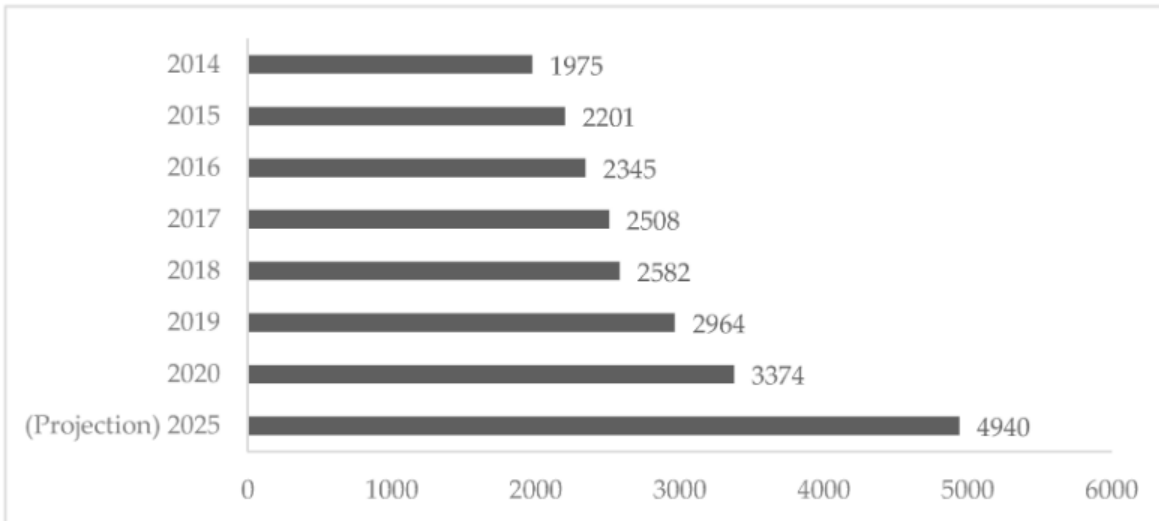


Figure 1: Growth of Islamic financial assets globally (in billions of USD). (source: (Harahap, 2023))

Several studies have examined the relationship between Islamic finance and economic growth, particularly in the context of infrastructure development. Hachicha & Amar (2015) conducted a study in Malaysia and found that Islamic bank financing has a positive impact on economic growth (Hachicha, 2015). Similarly, Saleem et al. (2021) formulated a theoretical framework to establish the connection between Islamic financial development and economic growth (Saleem, 2021). These studies suggest that Islamic finance can contribute to sustainable economic growth by providing financing for infrastructure projects.

Ledhem & Mekidiche (2021) conducted a study in Southeast Asia and found that the development of Islamic finance is positively correlated with economic growth in the region (Ledhem, 2021). They also highlighted the importance of the Muslim population's share in a country in improving

the contribution of Islamic finance to economic growth. This suggests that countries with a significant Muslim population can leverage Islamic finance to boost infrastructure development and achieve sustainable economic growth.

Islamic finance has also been studied in the context of specific countries. Fathan & Arundina (2019) examined the causal relationship between Islamic finance development and economic growth in Indonesia and found a positive relationship between the two (Fathan, 2019). Similarly, Nawaz et al. (2019) conducted a study in Pakistan and found that a well-functioning Islamic financial system promotes economic growth (Nawaz, 2019). These studies provide evidence that Islamic finance can play a role in boosting infrastructure development and driving sustainable economic growth at the country level.

Furthermore, Butt et al. (2023) conducted an international study and proposed that regulators should focus on the development of Islamic finance to promote a country's economic growth (Butt, 2023). Ledhem & Mekidiche, (2021) also conducted a study in Turkey and found that Islamic finance is promoting economic growth in the country (Ledhem, Islamic finance and economic growth: the Turkish experiment, 2021). These studies suggest that policymakers and regulators can play a crucial role in harnessing the potential of Islamic finance to boost infrastructure development and achieve sustainable economic growth.

Therefore, based on what studies have shown, Islamic finance can contribute to economic growth, particularly in the context of infrastructure projects, as countries with a large Muslim population can leverage Islamic finance to boost infrastructure development towards achieving sustained economic growth. Policymakers and regulators also have an important role to play in promoting the development of Islamic finance by harnessing all its potential to achieve economic growth. By leveraging Islamic finance principles and practices, countries can create an enabling environment for infrastructure development and drive sustainable economic growth.

2. Importance of infrastructure development for sustainable economic growth

Infrastructure development, based on public-private partnerships, is crucial to achieving sustainable economic growth, as it provides a necessary foundation for the prosperity of various sectors of the economy and contributes to overall productivity and efficiency. It is widely recognized by governments, the private sector and the international development community that high-quality infrastructure plays a key role in promoting economic growth and reducing poverty. In order to meet the investment needs of the Sustainable Development Goals (SDGs), there is a need to move beyond relying solely on Official Development Assistance (ODA) and instead attract trillions of dollars in investments from various sources. In the context of Islamic finance, infrastructure development becomes more important because it is consistent with the principles of economic justice, equity and social responsibility.

The SDGs explicitly emphasize the importance of developing quality, reliable, sustainable, and resilient infrastructure to support economic development and human well-being. This includes

regional and trans-border infrastructure with a focus on affordable and equitable access for all. In this regard, the private sector has been recognized as a crucial partner in partnering with governments to efficiently provide infrastructure.

Islamic finance can play a significant role in supporting inclusive growth and contributing to the achievement of the SDGs. The Islamic finance sector has grown exponentially over the last two decades, accumulating nearly \$1.9 trillion in assets across 50 Muslim and non-Muslim countries worldwide. Its basic principles support socially inclusive and development-enhancing activities, making it well-suited for financing sustainable infrastructure projects.

Islamic finance encompasses various sub-sectors, including Islamic banking, capital markets, insurance (Takaful), Other Islamic Financial Institutions (OIFI's) and Islamic funds. Studies have shown that certain types of assets within Islamic finance, such as Islamic banks' deposits and sukuk issuance (Islamic bonds), have a positive relationship with GDP growth in Muslim countries. This suggests that the development of these specific areas can have a significant impact on economic growth.

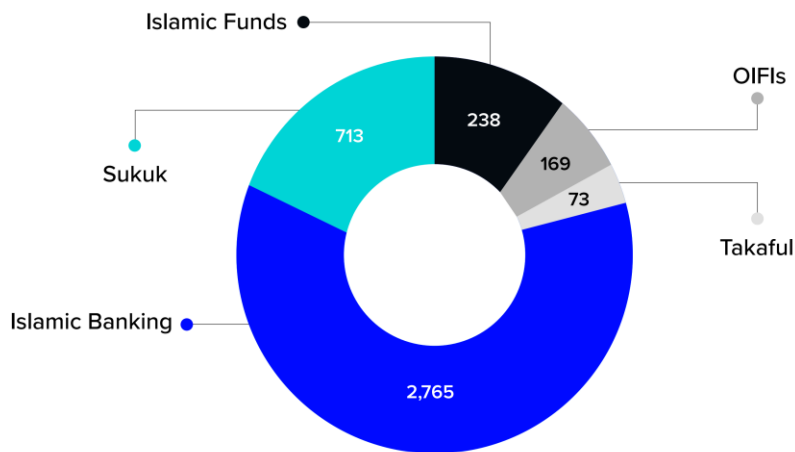


Figure 2: Islamic finance sub-sectors. [source: (Refnitiv, 2022)]

Emerging market and developing economies with substantial Muslim populations face significant deficits in infrastructure investment. These countries need to attract private capital to bridge these gaps and unleash their full development potential. Public-private partnerships (PPPs) have been successfully used globally to channel private capital into infrastructure investments, including through Islamic finance.

The global need for infrastructure investment is enormous, requiring trillions of dollars annually over the next 15 years. Traditional public financing alone cannot meet this demand, leading policymakers to seek innovative solutions such as PPPs. The SDGs provide a framework for prioritizing infrastructure investments based on their environmental, social, and economic sustainability.

Islamic finance can provide a complementary source of financing for infrastructure projects by mobilizing additional resources alongside PPPs. With its rapid growth globally, Islamic finance has the potential to contribute significantly to meeting the infrastructure investment needs of developing countries, including Muslim-majority countries.

As a combined result, infrastructure development is crucial for sustainable economic growth and poverty reduction. The private sector, including through Islamic finance, can play a vital role in partnering with governments to efficiently provide quality infrastructure. By leveraging private capital and embracing innovative financing approaches like PPPs, we can bridge the infrastructure investment gap and achieve the SDGs' objectives. Islamic finance's principles of inclusivity and development focus make it well-suited for financing sustainable infrastructure projects and contributing to global development efforts. See references: (Ahmad, A & Alawode, A. , 2017), (Refinitiv, 2022), (S&P Global Ratings, 2021).

3. Islamic finance and infrastructure development

Islamic finance is seen as having the potential to significantly enhance infrastructure development, which is critical for economic growth and poverty reduction. It has been recognized as one of the fastest-growing segments of the financial sector in developing countries (Farooq, M. & Zaheer, S, 2015). The basic principles on which Islamic finance is based, as an asset-based and risk-sharing financing method, include a strong foundation for financing infrastructure initiatives. It can also facilitate the mobilization of funds necessary to expand infrastructure and improve its quality. Furthermore, Islamic finance emphasizes the ethical aspect of investment practices, ensuring that infrastructure projects contribute to the overall well-being of society and the environment (Hassan & Mollah, 2018). In this context, and by taking advantage of the unique features of Islamic finance, governments and organizations can benefit from the financing provided by Islamic capital markets as an additional resource to fill the financing gaps of infrastructure projects.

Islamic finance also has the potential to support development and contribute to positive social impact, financial inclusion, and the resilience of the financial sector (Pericoli, A., 2020). One of the mechanisms for raising capital and developing infrastructure is through sukuk, which is a form of Islamic finance. Sukuk can be used as a means to raise capital for infrastructure projects in countries like Nigeria (Kareem, I, Mahmud, M, & Ganiyy, A. , 2020).

Islamic finance can also be mobilized for infrastructure public-private partnerships (PPPs). By integrating Islamic finance into PPPs, infrastructure projects can be successfully supported, leading to the achievement of sustainable development goals (Ahmad, A & Alawode, A. , 2017). Public-private partnerships (PPPs) also play a vital role in bridging infrastructure financing gaps, as financing projects within public-private partnership frameworks can be an effective way to attract and expand Islamic financing for infrastructure projects.

The success of Islamic finance in infrastructure PPPs is influenced by factors such as prioritizing infrastructure PPPs within the Islamic finance framework (Gundogdu, 2018). Additionally, Musharakah, a form of Islamic finance, plays a significant role in creating employment and maintaining sustainable development projects, contributing to the overall development of the economy (Ahmad, Aslam, Haq, & Billah, 2019). Islamic finance can also play a role in

infrastructure development on a global scale. The Belt and Road Initiative, for example, presents an opportunity for the integration of Islamic finance in infrastructure projects, promoting efficiency in cross-border cooperation (Chu & Muneeza, 2019). To support infrastructure development, Islamic finance can be utilized through various instruments such as zakat, waqf, and impact investing (Adinugraha, Shulhoni, & Achmad, 2023).

The asset-backed approach in Islamic finance promotes fair distribution of income and wealth and allows capital providers to directly participate in economic activities, contributing to social and economic development. Within this context, the World Bank Group and the Islamic Development Bank Group (IsDBG) are key players in facilitating collaboration between Islamic finance and PPPs, as their experience and expertise in both domains enable them to reduce poverty, promote financial sector development, and build financial inclusion and stability in client countries.

In Malaysia, robust regulations and governance frameworks have contributed to promoting the development of Islamic finance. The Securities Commission Malaysia and Bank Negara Malaysia have created an ecosystem conducive to innovation in Islamic finance, recognizing the importance of the capital market in supporting responsible finance aligned with the UN's 2030 Agenda on Sustainable Development.

Despite the challenges posed by the global pandemic, Islamic finance had an opportunity to support countries, banks, companies and individuals affected by the crisis while promoting environmental, social and governance (ESG) goals, as initiatives such as the Dubai Sustainable Finance Working Group are working to encourage sustainability in Islamic finance through green financial instruments and responsible investment.

Therefore, Islamic finance can play a significant role in boosting infrastructure development by aligning with inclusive growth goals and addressing its challenges through the asset-backed approach in Islamic finance and the redistribution and sharing of risk. Collaborations between PPPs and Islamic finance have immense potential to bridge the infrastructure gap, and institutions such as the World Bank Group and the Islamic Development Bank Group can facilitate further cooperation for sustainable infrastructure development. See references: (Ahmad, A & Alawode, A. , 2017), (Refnitiv, 2022), (S&P Global Ratings, 2020).

Overall, Islamic finance has the potential to play a crucial role in boosting infrastructure development. It can contribute to sustainable economic growth, address the infrastructure funding gap, promote financial inclusion, and support the achievement of the SDGs. However, there are still barriers and challenges that need to be addressed to fully harness the potential of Islamic finance in infrastructure projects (Rarasati, Trigunarsyah, Too, & Lamari, 2019).

4. Qualitative analysis of the use of Islamic financial products for infrastructure investment

4.1. Overview of Islamic financial products

Islamic capital markets are an integral part of the Islamic financial system in terms of the ability to efficiently mobilize resources and optimally allocate them. These markets complement the investment role of the Islamic banking and insurance sector. It is more relevant to Islamic economics because the prohibition of interest entails greater reliance on equity and asset-based financing. These markets are essential for investors to be aware of the fair value of their

investments and to work to minimize risks through diversification and the ability to liquidate their positions in real assets. However, the Islamic financial system's institutional arrangements for these markets may differ from those of their conventional counterparts.

Over the past two decades or so, the Islamic financial sector has grown and gained strength through the establishment of numerous support institutions and infrastructure, expanding from being a bank-based industry into broader areas that include financial market-based products and practices. Consequently, the Islamic financial markets have emerged as perhaps the most rapidly expanding sector of the Islamic finance industry, as a multitude of innovative products, tools, and practices have been incorporated, enabling a broader range of return- and risk-based combinations to cater to a broader range of investors. There is no unique measure to measure the increasing growth of capital markets in Islamic finance, but there are a number of facts and evidence that indicate its rapid growth, such as (Syed Ali, 2008):

- Growth of Sharia-compliant funds,
- The size of the stock market compatible with the provisions of Islamic Sharia,
- Introduction of innovative products such as Sukuk and,
- A number of important institutional developments such as the emergence of various regularly calculated indices for Islamic financial markets and classification methodologies for Islamic capital markets products. And initiating efforts towards simplifying and standardizing the legality of products and their regulatory mechanisms.

There is no Sharia requirement for a separate stock market to make stocks compliant with Islamic Sharia requirements. Islamic capital markets do not currently provide a separate exchange for Islamically approved stocks or securities. Stocks are considered compliant once they pass the screening criteria that have been set. Developed by various service providers in accordance with Islamic Sharia principles.

Islamic capital market instruments are divided into three main categories:

- a. Stock market and related products:
 - Companies listed on the stock exchange
 - Open-end funds and mutual funds
 - Venture capital funds
 - Specialized funds
- b. Fixed income instruments or what are known as Islamic bonds (Islamic financing sukuks)
- c. Structured products and derivatives of an Islamic nature

4.2. Islamic financial products and their suitability for investment in infrastructure

The global Islamic finance market has experienced significant growth and has established regulatory institutions to guide its practices. This creates favorable conditions for deploying Islamic finance in infrastructure public-private partnerships (PPPs). By utilizing Islamic financial

products and integrating them with conventional financing, project financiers can ensure compliance with shari'ah requirements. Infrastructure PPP projects are capital-intensive and often require multiple financiers, providing opportunities for both Islamic and conventional finance lenders to participate. Customized Islamic finance structures, such as ijarah leasing, allow for flexible financing arrangements tailored to each project's unique needs. The World Bank Group can play a crucial role in promoting and facilitating the use of Islamic finance for infrastructure PPPs, given its experience and expertise in both Islamic finance and PPPs. By raising awareness about the benefits and applications of Islamic finance and fostering collaboration between Islamic and conventional financiers, it is possible to mobilize resources and address the infrastructure deficits faced by developing countries (Ahmad, A & Alawode, A. , 2017).

The analysis of Islamic financial products for investment in infrastructure is a crucial area of study in the context of Islamic finance. Islamic finance has gained significant attention in recent years due to its unique principles and practices (El-Gamal, 2007). The study of Islamic financial products and their potential for investment in infrastructure is essential for understanding the role of Islamic finance in promoting economic development and infrastructure growth (Chu & Muneeza, 2019). Islamic financial products, such as sukuk, have been increasingly utilized for infrastructure financing, and their differences from conventional financial instruments have been a subject of interest (Godlewski, Turk-Ariss, & Weill, 2011). Furthermore, the relationship between Islamic finance and economic growth has been explored, highlighting the potential contribution of Islamic financial development to economic growth through infrastructure improvement (Naz & Gulzar, 2023).

The literature also emphasizes the importance of financial literacy and risk perception in the context of Islamic financial products (Hati, Wibowo, & Safira, 2020). Understanding the factors influencing Muslim customers' intention to invest in Islamic financial products is crucial for the development and promotion of these products, including those related to infrastructure investment (Hati, Wibowo, & Safira, 2020). Additionally, the role of Islamic financial literacy in moderating the influence of influencer attractiveness on the ownership intention of Islamic investment products has been highlighted (Lutfi & Prihatiningrum, 2023). This underscores the significance of financial literacy programs in promoting understanding and adoption of Islamic financial products, including those related to infrastructure investment.

Moreover, the study of Islamic banking and corporate investment efficiency provides insights into the impact of Islamic banks' financing on corporate investment efficiency, which is relevant in the context of infrastructure investment (Guizani & Ajmi, 2021). The nexus between risk-sharing versus non-risk-sharing financing and economic growth has also been examined, demonstrating the effective intermediary role of Islamic finance in pooling and channeling funds to investment activities in the real economy (Chowdhury, Akbar, & Shoyeb, 2018). These findings contribute to understanding the potential impact of Islamic finance on infrastructure investment and economic development.

As a result of what was reviewed, the qualitative analysis of Islamic financial products for investment in infrastructure is a multidimensional area of study that encompasses various aspects of Islamic finance, including financial literacy, risk perception, corporate investment efficiency, and economic growth. The literature provides valuable insights into the potential of Islamic financial products, such as sukuk, in infrastructure financing and their role in promoting economic development. Understanding these aspects is essential for harnessing the full potential of Islamic finance in infrastructure investment and fostering sustainable economic growth.

4.3. Case studies illustrating successful use of Islamic financial products in infrastructure projects

Case studies of countries using Islamic finance for infrastructure development provide valuable insights into the qualitative analysis of Islamic financial products. These case studies highlight the potential benefits and impact of Islamic finance on economic growth and stability.

One case study that demonstrates the effectiveness of Islamic finance in infrastructure development is Malaysia. As a prominent player in the Islamic finance industry, Malaysia has successfully utilized Islamic financial instruments such as Mudarabah, Musharakah, Ijara, and Istisna'a for funding infrastructure projects. These instruments' risk-sharing and asset-backed features make them suitable for long-term projects with substantial capital requirements. Additionally, the use of Sukuk (Islamic bonds) has provided an alternative source of funding for infrastructure projects with extended construction and amortization periods.

Kazakhstan is another country that has embraced Islamic finance as a driver for infrastructure development. The government's initiatives to develop the country's Islamic financial industry, including establishing the Astana International Financial Centre (AIFC), have paved the way for its transformation into a regional hub for Islamic finance in Central Asia by 2020. Kazakhstan has successfully issued Sukuk to raise funds for infrastructure projects and plans to launch its first sovereign Sukuk in the near future.

These case studies indicate that integrating Islamic financial principles into a country's overall financial system can contribute to economic growth and reduce volatility. The asset-backed nature of Islamic financial instruments provides greater reliability in financial transactions, attracting both domestic and international investors. Furthermore, expanding the Islamic banking sector, insurance sector, and money and capital market instruments can further stimulate economic growth and control volatility.

The findings from these case studies are consistent with research that shows a positive relationship between Islamic finance development and environmental, social, and governance (ESG) scores. Studies have indicated that countries with higher levels of Islamic finance development tend to have better ESG performance. This suggests that incorporating ethical principles into financing practices can contribute to sustainable development outcomes.

As a summary of what has been documented, the case studies of countries utilizing Islamic finance for infrastructure development provide valuable insights into the qualitative analysis of Islamic financial products. These studies demonstrate the potential benefits of Islamic finance in promoting economic growth, reducing volatility, and supporting sustainable development.

Therefore, it is recommended that countries consider expanding their Islamic financial sectors to leverage these advantages and achieve their infrastructure development goals (Paltrinieri, Dreassi, Migliavacca, & Piserà, 2020), (Refinitiv, 2021), (Harahap, Risfandy, & Futri, 2023), (Zeti, 2013), (Ali, 2022), (Ashraf & and all, 2016), (Bouajina, 2017), (OECD, 2020).

5. Quantitative development of Islamic financial institutions and capital markets

The development of Islamic financial institutions and capital markets has grown rapidly in recent decades. This quantitative growth has been driven by several factors, including the increasing demand for Sharia-compliant financial products and services, the expansion of Islamic banking into new markets, and technological innovations. However, there are still challenges that need to be addressed to ensure the sustainable growth of the Islamic financial sector.

The geographical expansion of Islamic finance into new markets has also contributed to its quantitative development. Initially concentrated in the Middle East and Southeast Asia, Islamic finance has spread to countries with large Muslim populations, including several African and European nations (Durán & García-López, 2012).

5.1. Introduction to Refinitiv's IFDI index and its relevance to Islamic finance

The Islamic Finance Development Indicator (IFDI) index developed by Refinitiv provides a quantitative measure of the development of Islamic finance institutions and capital markets. The IFDI index tracks the growth and performance of Islamic banks, Takaful companies, Sukuk issuances and Islamic funds across the globe.

The IFDI index uses a rules-based methodology to assign scores and weights to various Islamic finance institutions and instruments based on a range of quantitative metrics. These metrics include the number of institutions, total assets, financing activities, customer deposits, capital adequacy ratios, profitability ratios, market capitalization, trading volumes, issuance volumes and asset under management. Higher scores are assigned to institutions and instruments with larger sizes, higher growth rates and better financial performance.

Refinitiv's Islamic Finance Development Indicator (IFDI) is a composite weighted index that measures the development of the global Islamic finance industry. It provides valuable insights for governments and financial institutions to guide policy decisions by analyzing key factors such as knowledge, governance, sustainability, and awareness. The IFDI captures data from 136 countries and offers comprehensive information on over 1,600 Islamic financial institutions through Refinitiv's Eikon platform. This enables stakeholders to make informed decisions and gain valuable insights. The IFDI index assesses overall industry performance, sub-sector performances, and ranks countries based on their Islamic finance development. It allows policymakers and industry players to track progress over time and understand the strength of the ecosystem supporting the industry's growth. Refinitiv has introduced new metrics related to ESG factors and Islamic FinTech in their updated IFDI model to capture emerging trends. By emphasizing financial components and governance, Refinitiv ensures these areas receive greater focus in driving development. The IFDI index serves as a resource for assessing the progress of Islamic financial

institutions and capital markets in ethical principles and sustainable practices. It enables stakeholders to identify trends, benchmark performance, and make evidence-based decisions that contribute to the industry's sustainable development. Overall, Refinitiv's IFDI index provides a comprehensive assessment of the Islamic finance industry's development, allowing stakeholders to make informed decisions for its sustainable growth (Ahmad, A & Alawode, A. , 2017), (Refinitiv, 2022).

5.2. Analysis of the growth and performance of Islamic financial institutions

The Islamic Finance Development Indicator (IFDI), provided by Refinitiv, is a valuable resource for analyzing the growth and performance of Islamic financial institutions. The 2022 Indicator monitors the development state of the Islamic finance industry in 2021, amidst the second year of the Covid-19 pandemic. It provides analysis on performance and rankings on a sub-sector level for 136 countries globally.

For the 2022 edition of the IFDI, the basic model that generates the global average index scores, the main indicators and their sub-indices has been revised. The five indicators that constitute the main drivers of development in the industry for 2022 are: Financial Performance, Governance, Sustainability, Knowledge and Awareness.

The average score for 136 countries for the year 2022 is 9, with 38 countries achieving a score above the average, while most are below 9. It should be noted that due to changes in the IFDI methodology for 2022, observations and ratings cannot be compared to previous years.

Referring to the IFDI index for the year 2021, this year witnessed a slight improvement compared to the previous year, as the index score for 2021 moved to 11.0 compared to 10.8 for 2020, which is an indication of the continued strength and development of the Islamic financial industry despite the unprecedented challenges. The knowledge and governance indicators improved compared to the previous year, but the Islamic finance awareness index decreased.

The indicators of quantitative development and corporate social responsibility (CSR) remained constant. Despite the pandemic challenges affecting profitability, which the IFDI measures through return on assets (ROA), the total assets of Islamic financial institutions continued to rise during 2020, with some sectors recording double-digit growth in some countries. However, the increase in assets was only enough to offset the decline in profitability but not exceed it. As a result, the scores of the sub-indices for Islamic banking, Takaful and other Islamic financial institutions remained almost stable compared to the previous year. The same applies to the Islamic capital market, as the double-digit growth of Islamic sukuks and funds was not enough to boost the results of the sub-indices. For example, the average cumulative performance of Islamic funds for some countries was negatively affected, resulting in lower sub-indicator scores. At the same time, sukuk issuances during 2020 remained steady in the dominant markets of the GCC and Southeast Asia, keeping sector index scores relatively stable compared to the previous year. The countries that experienced a significant upward movement in their scores and rankings of development indicators in quantitative terms, due to improvement in some components of their sub-indices, are India, Australia, Pakistan, and Ethiopia (Refinitiv, 2021).

Technological innovations, including the emergence of FinTech and digital banking, have enabled the quantitative growth of Islamic finance. New technologies have helped Islamic banks develop and market new Sharia-compliant products more efficiently, reach more customers, and improve risk management. However, studies show that Islamic financial institutions still lag behind their conventional counterparts in terms of innovation levels. This suggests there is potential for further quantitative development through greater technological adoption (Panjwani & Shili, 2020).

Despite this quantitative expansion, several challenges remain for the sustainable growth of the Islamic financial sector. These include a lack of standardization and harmonization of Sharia interpretations and contracts (Yusoff & Oseni, 2019), the complexity of some Islamic financial products (Kabir, Worthington, & Gupta, 2015), a shortage of human capital and expertise (Muhammad & Nugraheni, 2022), and the limited integration of Islamic banks into the global financial system (Tashtamirov & Abdurakhmanova, 2021). Addressing these challenges through appropriate regulations, product innovations, skills development and international cooperation will be crucial for the next phase of quantitative development of the Islamic financial industry (Santoso, Canon, & Pakaya, 2019).

6. Analyzing the growth development of Islamic financial assets

The growth and development of Islamic financial assets have been a subject of increasing interest among scholars, policymakers, and practitioners. This is due to the rapid expansion of Islamic finance globally, with Islamic financial assets reaching trillions of dollars and encompassing a wide range of financial instruments, including sukuk, Islamic funds, Islamic banking products, and Takaful. Understanding the dynamics of this growth and development is crucial for assessing the impact of Islamic finance on the global financial system and for identifying opportunities and challenges for its further expansion.

In this context, this paper aims to analyze the growth and development of Islamic financial assets from a comprehensive perspective. By examining the historical evolution, current status, and future prospects of Islamic financial assets, this study seeks to provide valuable insights into the factors driving their growth, the regulatory and institutional frameworks shaping their development, and the implications of their expansion for the broader financial industry.

To achieve this objective, this paper will draw on a range of scholarly and authoritative sources to provide a thorough analysis of the growth and development of Islamic financial assets. By synthesizing empirical evidence, theoretical frameworks, and industry reports, this study will contribute to a deeper understanding of the unique features and dynamics of Islamic finance and its role in the global financial system.

6.1. Overview of different types of Islamic financial assets

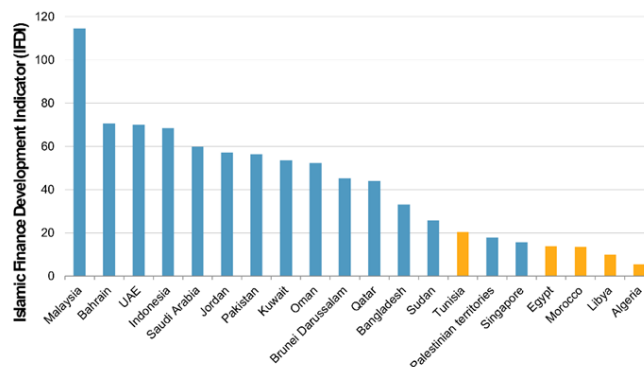
Islamic finance encompasses a diverse range of financial assets that adhere to Shari'ah principles. These assets have gained significant traction in both Muslim countries and the global financial landscape. The types of Islamic financial assets include Shari'ah-compliant assets (SCA), Shari'ah-compliant securities (SCS), Shari'ah-compliant financing (SCF), and sukuk. Sukuk, in particular, has seen various applications in the Islamic financial services industry, with different types being

utilized based on the endorsement of fourteen different types by the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) (Issoufou & Oseni, 2015). Additionally, Islamic financial instruments such as zakat, Islamic banks, sharia mutual funds, sharia stocks, and sukuk have been identified as having a positive role in encouraging economic growth (Andiansyah, Hanafi, Haryono, & Wau, 2022). Furthermore, the profitability analysis of Islamic (Sukuk) versus conventional financing has highlighted the emergence of Islamic Financials (Sukuk) as a pioneering capital market instrument (Jadoon, 2019).

6.2. Growth evolution of Islamic financial industry assets

The global Islamic finance industry has experienced remarkable growth in recent years, with a 14% increase in total assets in 2020 and a further 17% growth in 2021, reaching an impressive US\$4 trillion. Islamic banking, the largest sector within the industry, played a significant role in this growth, holding 70% of the industry's assets. The sector benefited from eased provisions for credit losses, government support to pandemic-hit sectors, and operational efficiencies gained through branchless banking and partnerships with FinTechs. Non-core Islamic finance jurisdictions such as Tajikistan, Burkina Faso, and Ethiopia saw the highest growth rates, indicating the emergence of new markets. Sukuk (Islamic bonds) also contributed to the industry's growth. Projections suggest that the global Islamic finance industry will reach US\$5.9 trillion by 2026, primarily driven by Islamic banks and sukuk. The entrance of new players into the market, including large Islamic banks branching into asset management, is expected to further contribute to industry growth and diversification. The expansion of Islamic exchange-traded funds (ETFs) and the introduction of new Islamic indices are also observed. Academic researchers have shown interest in exploring topics related to Islamic social finance, such as zakat, financial inclusion, Islamic financial literacy, cash waqf, impact investing, and sustainable development (Ahmad, A & Alawode, A. , 2017), (Refnitiv, 2022), (S&P Global Ratings, 2020), (S&P Global Ratings, 2021).

ICD-Thomson Reuters Islamic Finance Development Indicator For Selected Countries
As of 2019



Source: S&P Global Ratings.
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Chart 1: Source: (S&P Global Ratings, 2021).

Despite the challenges posed by the COVID-19 pandemic, the Islamic finance industry has shown resilience. The pandemic led to various risks and uncertainties, such as new outbreaks, uneven recovery, and lower interest rates. However, Islamic financial institutions were able to adapt to these challenges and maintain their growth trajectory.

6.3. Evaluation of the size and performance indicators for these assets

The Islamic finance industry has shown resilience and growth despite the global pandemic. In 2020, total assets increased by 14%, and in the following year, there was a remarkable growth of 17%, surpassing pre-Covid levels and reaching US\$4 trillion. Islamic banking, which holds 70% of the industry's assets, saw a significant increase in net income due to eased provisions for credit losses, extended government support, operational efficiencies, and high demand. Non-core Islamic finance jurisdictions like Tajikistan, Burkina Faso, and Ethiopia experienced the highest growth rates in Islamic banking.

Takaful, the smallest sector within Islamic finance, also exhibited strong growth at a rate of 17%. The sector is undergoing consolidation in Gulf Cooperation Council countries and witnessing regulatory changes in Southeast Asia to enhance governance and attract new entrants.

The growth of Islamic banking, Sukuk, Islamic Funds, Other Islamic Financial Institutions (OIFIs), and Takaful contributes to the overall financial performance of the Islamic Finance Development Indicator (IFDI). Malaysia leads in governance, while Malaysia, Saudi Arabia, Singapore, South Africa, and Jordan show promising performance in sustainability indicators.

Looking ahead to 2026, the IFDI projects significant growth for the global Islamic finance industry, reaching US\$5.9 trillion, primarily driven by Islamic banks and sukuk. Islamic finance's stability and resilience during past financial crises can be attributed to its equity-based system and direct involvement in real economic activities.

Islamic finance has the potential to play a vital role in financing public-private partnerships (PPPs) for infrastructure development. The risk-sharing nature of PPP projects aligns well with the philosophy of sharing risks in Islamic finance. Project finance techniques combined with Islamic finance instruments can offer innovative solutions for financing large-scale infrastructure projects.

The Islamic finance industry continues to evolve, and the IFDI serves as a valuable tool in measuring its progress and identifying areas that require attention and improvement. With continued growth and advancements, Islamic finance can contribute significantly to sustainable infrastructure development worldwide (Ahmad, A & Alawode, A. , 2017), (Refnitiv, 2022), (S&P Global Ratings, 2021).

7. Reviewing quantitative dimensions of sub-sectors within the Islamic financial industry

The Islamic financial industry encompasses various sub-sectors such as Islamic banking, Islamic stock markets, Takaful, and Islamic real-estate finance. Research in this field has highlighted the need for further examination of the development of Islamic finance at a micro perspective, including the exploration of other sub-sector components. Islamic banking, as a major sub-sector, has garnered increased interest from researchers, emphasizing the necessity to fully explore and

understand its dynamics. Additionally, studies have shown that Islamic stock indices are less volatile than conventional stock indices, and there is a strong positive association between Islamic banks' financing credited to the private sector and economic indicators such as GDP and foreign direct investment inflow. Furthermore, the potential of Islamic finance in specific regions, such as Kazakhstan, has been assessed based on quantitative parameters, including the assessment of funds on bank deposits.

Overall, the quantitative dimensions of sub-sectors within the Islamic financial industry have been the subject of extensive research, emphasizing the need for further exploration of specific sub-sectors, their impact on economic growth, and their potential in different regions. The existing literature underscores the importance of conducting robust and comprehensive research to enhance the understanding of Islamic finance and its various sub-sectors.

7.1. Analysis of sub-sectors within the Islamic finance industry

The Islamic finance industry has seen significant growth and development in various sub-sectors, contributing to the quantitative development of Islamic financial institutions and capital markets. One notable area of expansion is in the field of fintech. In countries such as Malaysia, Indonesia, Saudi Arabia, Bahrain, and the UAE, there has been a strong focus on expanding the fintech sector to promote financial inclusion and accessibility to digital platforms. The COVID-19 pandemic has further accelerated the digitization of finance, leading to increased visibility and adoption of Islamic fintech services. These services include payments, financing, crowdfunding, wealth management, and integration with e-commerce. Additionally, newer developments such as asset tokenization and buy-now-pay-later options have gained momentum.

Governments in these top Islamic finance jurisdictions have also prioritized sustainability and environmental, social, and governance (ESG) initiatives. Malaysia, Indonesia, and Saudi Arabia have leveraged sukuk to finance social and green projects. This trend is expected to continue as these markets further expand the nascent Islamic ESG space beyond the capital market. Notably, the multilateral Islamic Development Bank issued the world's first-ever Secured Overnight Financing Rate (SOFR)-linked sukuk in 2021.

In terms of governance within the Islamic finance industry, strong regulations and controls are crucial for instilling consumer and investor confidence. Recent scandals involving financial institutions highlight the importance of robust governance practices. The IFDI assesses governance through regulations, corporate governance, and Shari'ah governance.

Beyond the top five jurisdictions in Islamic finance, other countries are also making strides in developing their Islamic finance industries. Kazakhstan has adopted legislation on Islamic banking since 2009 and aims to become a regional hub for Islamic finance in Central Asia by 2020. Similarly, Maldives introduced Islamic finance in 2005 and has since established several financial institutions offering Islamic products and services.

Overall, the sub-sectors within the Islamic finance industry have contributed to its quantitative development. Fintech and ESG initiatives have gained momentum, while governance remains a critical aspect for ensuring the industry's legitimacy. With continued efforts and support from governments and regulatory bodies, the Islamic finance industry is poised for further growth and

economic impact in infrastructure development and overall economic growth. See references: (Refnitiv, 2021), (Refnitiv, 2022), (Ali , 2022), (Ashraf & and all, 2016), (CEO, 2022).

7.2. Assessment of different sub-sectors within the Islamic financial industry

The size and performance analysis of the various sub-sectors within the Islamic financial industry is crucial for understanding its quantitative dimensions and overall growth. In order to assess the different sub-sectors within the Islamic financial industry for sustainable infrastructure development, it is important to review the quantitative dimensions of each sub-sector, including banking, insurance, and investment. The Islamic Financial Services Board (IFSB) and the International Islamic Financial Markets (IIFM) play crucial roles in promoting and enhancing the soundness and stability of the industry by issuing global prudential standards and guiding principles.

Islamic banking is a key sub-sector within the Islamic financial industry. It involves providing banking services and products that are compliant with Shari'ah (Islamic law). The IFSB works closely with relevant organizations to develop standards for this sector. On a global scale, Islamic banks have shown steady growth, contributing significantly to the overall size of the industry.

Another important sub-sector is insurance, or Takaful in Islamic finance. Takaful operates on principles of solidarity and mutual support, providing an alternative to conventional insurance. The IFSB promotes standardization in this area through its work with the IIFM. Takaful has gained traction in certain regions but still has room for growth and development.

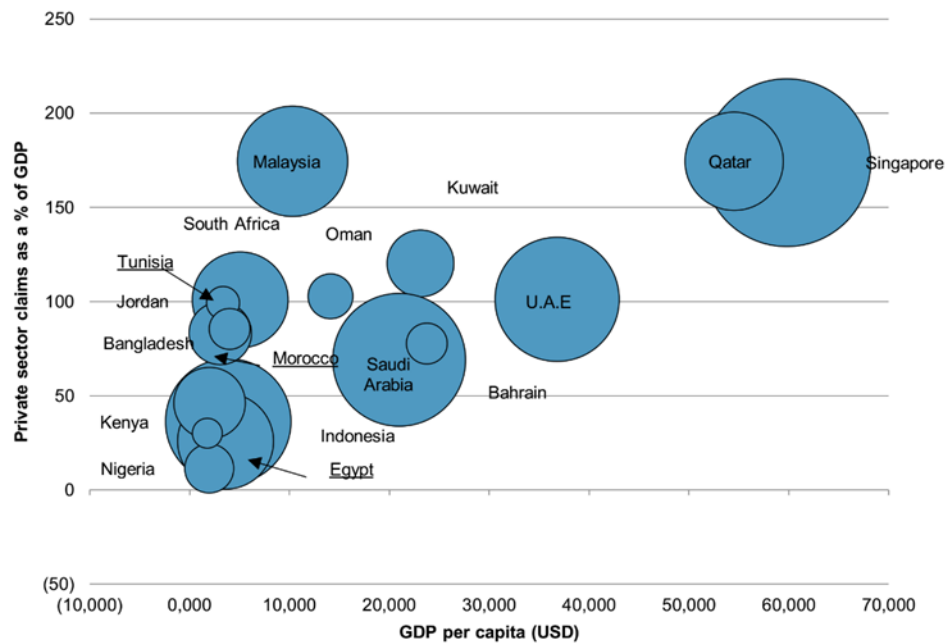
Investment is a critical aspect of the Islamic financial industry as well. Sukuk, often referred to as "Islamic bonds," are certificates representing ownership interests in underlying assets or activities that generate cash flow. These instruments provide opportunities for investors to participate in projects while adhering to Shari'ah principles. The global market for Sukuk has been growing steadily, contributing significantly to the overall growth of the Islamic finance industry.

It is worth noting that despite progress over the past decade, the contribution of Islamic finance to North African economies remains small. However, some countries in this region are considering turning to sukuk issuance as a means to finance post-COVID-19 economic recovery. To bolster growth in North Africa, there needs to be a stronger focus on leveraging economic added value rather than solely relying on religious differentiation.

In order to enhance the growth and reach of Islamic finance, market players, regulators, and relevant institutions in North Africa need to improve market understanding, widen product offerings, and develop new products in other financial segments such as capital markets and insurance. Coordination among these stakeholders is crucial to ensure a comprehensive and well-rounded framework that meets the needs of customers and investors.

Overall, the Islamic financial industry has shown significant growth globally, with Islamic banks and sukuk being major contributors. However, there are still challenges to overcome in certain regions, such as limited refinancing sources for Islamic banks in North Africa. By addressing these challenges and focusing on sustainable infrastructure development, the Islamic financial industry can play a key role in fostering economic growth while adhering to Shari'ah principles (Ahmad, A & Alawode, A. , 2017), (Refnitiv, 2022), (S&P Global Ratings, 2021).

Banking Penetration In North African Countries Is Lower Than Peers



Bubble size represents total domestic assets of financial institutions in 2020 in USD. Source: S&P Global Ratings.
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Chart 2: Source: (S&P Global Ratings, 2021).

8. Conclusion

In conclusion, the use of Islamic finance for infrastructure development has emerged as a significant driver for sustainable growth. The Islamic finance industry has faced challenges due to currency depreciation in key markets, such as Iran, Pakistan, Sudan, and Turkey. However, the industry's potential is still immense, with several governments incorporating Islamic finance in their strategies and roadmaps.

One of the key findings is the continued robust demand for Islamic financial products like sukuk. Increasing budgetary pressures on major markets like Southeast Asia and Pakistan are expected to drive the issuance of sukuk. Consequently, the industry is projected to reach a substantial value of US\$5.9 trillion by 2026.

Malaysia has been at the forefront of developing Islamic finance, thanks to the efforts of institutions like the Securities Commission Malaysia and Bank Negara Malaysia. These institutions have created a robust ecosystem through regulations, Shariah governance framework, legal framework, and licensing of dedicated Islamic financial institutions.

The importance of sustainable finance in supporting the United Nations' 2030 Agenda on Sustainable Development has gained traction. The efficient mobilization of funds in capital markets plays a crucial role in supporting sustainable outcomes and meeting development needs. In line with Malaysia's commitment to this agenda, the Securities Commission has focused on developing sustainable finance intermediation.

Islamic finance can contribute significantly to inclusive growth and poverty reduction. With shari'ah-compliant assets accumulating nearly \$1.9 trillion across 50 countries worldwide, it has become evident that Islamic finance supports socially inclusive and development-promoting activities.

In terms of infrastructure development through public-private partnerships (PPPs), there is growing recognition that high-quality infrastructure is vital for economic growth and poverty reduction. The private sector can play a crucial role in partnering with governments to ensure efficient provision of infrastructure.

However, more awareness and knowledge building about Islamic finance are needed for its routine use in PPPs. Efforts should be made to familiarize practitioners with Islamic finance structures and financing options for infrastructure projects. The flexibility of Islamic finance, combined with practitioners' ability to address specific project and country needs, make it applicable to infrastructure PPPs worldwide.

To facilitate the deployment of Islamic finance in infrastructure PPPs, there is a need to develop a comprehensive list of projects, more case studies, and a data repository. This will provide valuable insights for practitioners, academics, and students engaged in research in this area. Additionally, efforts should be made to document the experience of multilateral development banks working on Islamic finance for PPPs.

In conclusion, Islamic finance has emerged as a viable option for sustainable infrastructure development. With the right strategies and awareness-building initiatives, Islamic finance can contribute significantly to meeting the investment needs of the Sustainable Development Goals and fostering inclusive growth. By leveraging its flexibility and addressing specific project requirements, Islamic finance can play an instrumental role in bridging infrastructure gaps in developing countries.

The implications for achieving sustainable economic growth through sustainable infrastructure investment in the context of Islamic finance are significant. Despite the challenges posed by the global pandemic, there is a clear opportunity for Islamic finance to support countries, banks, companies, and individuals impacted by the crisis in navigating a path forward sustainably in line with Environment, Social and Governance (ESG) goals.

One of the key objectives for 2020 was to create a framework to enable standardization within the Islamic finance sector. This is crucial for ensuring sustained growth and longevity. Innovation plays a critical role in this process, as embracing new technologies and business models is essential for maintaining momentum within Islamic finance. By embracing digital innovation and transformation, the industry can cater to new segments, including the regional unbanked and underbanked populations. The younger generation, including millennials and Generation Z customers, will also play a significant role in the growth of Islamic finance.

In terms of infrastructure development, Islamic finance has been increasingly deployed in Public-Private Partnerships (PPPs). The Islamic Development Bank Group (IsDBG) and other multilateral development banks have started deploying Islamic finance instruments to support infrastructure

projects. This not only provides much-needed confidence to commercial lenders but also contributes to the body of knowledge and experience in structuring these transactions.

However, more knowledge about Islamic finance is needed within countries seeking infrastructure finance through PPPs. Stakeholders involved in these projects often have limited understanding of how to apply Islamic finance instruments effectively. Therefore, there is a significant opportunity for awareness-building and knowledge-sharing in this area.

The International Bank for Reconstruction and Development (IBRD) has played a crucial role in fostering the development of Islamic finance globally. Through its Global Islamic Finance Center and Global Islamic Finance Development Program, it provides technical assistance, advisory services, and training to client countries interested in developing their Islamic financial institutions and markets.

To further support sustainable economic growth through Islamic finance, it is important to continue fostering collaboration and innovation in the industry. Dubai, with its leading position in Sukuk issuances, is at the forefront of developing a unified global Islamic finance legal and regulatory framework. The digitization of the industry is also crucial for future growth, and DIFC has been nurturing this potential through its comprehensive approach to innovation.

In conclusion, Islamic finance has the potential to contribute significantly to achieving sustainable economic growth through sustainable infrastructure investment. By embracing standardization, innovation, and digitization, while also building knowledge and awareness about Islamic finance's application in infrastructure projects, the industry can play a crucial role in supporting post-pandemic recovery and delivering sustainable economic growth.

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