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Contents

Abstract

The thesis provides an elaborate analysis of the integration of Islamic Finance principles and Financial Technology in Austria's financial sector. It delves into the contrast between Islamic Finance, governed by Sharia laws focusing on ethical investment and the prohibition of interest, and Western financial methodologies. The study highlights the pivotal role of FinTech in revolutionizing Islamic financial operations, enhancing inclusivity, and ensuring compliance with Islamic doctrines. This research is crucial in understanding the complexities and potential of Islamic Finance within the Austrian context, analyzing both the challenges and opportunities of this integration. It also examines the broader societal, cultural, and regulatory implications, offering valuable insights for policymakers and practitioners in the field. This thesis stands as a significant contribution to the academic exploration of Islamic Finance and its future trajectory influenced by technological advancements in Austria.

Zusammenfassung

Die Dissertation bietet eine detaillierte Analyse der Integration von islamischen Finanzprinzipien und Finanztechnologie im österreichischen Finanzsektor. Sie untersucht den Kontrast zwischen islamischen Finanzen, die auf ethischen Investitionen und dem Zinsverbot basieren, und westlichen Finanzmethoden. Die Studie hebt die zentrale Rolle von FinTech bei der Revolutionierung islamischer Finanzoperationen, der Steigerung der Inklusivität und der Einhaltung islamischer Doktrinen hervor. Diese Forschung ist entscheidend für das Verständnis der Komplexität und des Potenzials islamischer Finanzen in Österreich und analysiert sowohl Herausforderungen als auch Chancen dieser Integration. Sie untersucht auch die breiteren gesellschaftlichen, kulturellen und regulatorischen Auswirkungen und bietet wertvolle Einblicke für politische Entscheidungsträger und Praktiker im Bereich. Diese Dissertation leistet einen wichtigen Beitrag zur akademischen Erforschung des islamischen Finanzwesens und ihrer zukünftigen Entwicklung, beeinflusst durch technologische Fortschritte in Österreich.

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Introduction

A growing field has emerged in the field of global finance, characterized by its ethical orientation and technological evolution: Islamic Finance integrated with Financial Technologies (FinTech). The qualifying work "Prospects for the Development of Islamic Finance based on FinTech in Austria," embarks on an analytical exploration of this unique financial landscape. Islamic Finance, governed by Sharia principles, stands in stark contrast to conventional Western financial systems, emphasizing ethical investing, risk-sharing, and asset-backed financing, as well as prohibitions against interest (riba) and speculative activities (gharar) (Abasimel, 2023; Hallaq, 2005).

The transformative potential of FinTech in this sector cannot be overstated. It presents novel avenues for enhancing efficiency, inclusivity, and compliance with Islamic principles in financial transactions. This integration is particularly poignant in Austria, where the financial market is experiencing an infusion of Islamic finance, aligning with global trends towards ethical and sustainable financial practices (Kok et al., 2022).

The thesis navigates through the complexities of integrating Islamic finance principles within the Austrian financial landscape, addressing the multifaceted challenges and opportunities therein. It is a pioneering study that not only contributes to academic discourse but also serves as an insightful guide for practitioners and policymakers, underscoring the potential of this integration to reshape the financial sector in Austria and beyond.

Problem Area and Research Questions

The system of Islamic finance is actively developing. This is facilitated not only by social factors, for example, by the migration of the Islamic population to other countries and continents but also by economic factors - the implementation of large projects outside the Islamic world, the emergence of additional investment resources. Financial activities based on the principles of Islamic finance are carried out in more than 60 countries, which confirms the formation of Islamic finance as a systemically significant industry (Salaam Gateway, 2022).

European companies actively cooperate with companies applying the principles of Islamic finance to implement international projects. In addition, there is a growing interest in getting an education in the field of Islamic finance (Hajjar, 2019). These processes suggest that the trend of Islamic finance development and diversification in Europe will continue. Interest in Islamic financial instruments is gradually increasing, creating prospects for their future usage in the financial markets of European nations as alternative sources of investment (Hajjar, 2019). For further development of the Austrian financial system, it is necessary to diversify the Austrian national market by introducing new and effective principles and tools that the Islamic financial system possesses.

The study investigates how the principles of Islamic finance, rooted in ethical and social justice tenets, interplay with the rapid advancements in FinTech, reshaping the financial landscape in Austria.

Main Research Question: *What are the prospects for the development of Islamic finance based on FinTech in Austria?*

Sub-Questions:

What are the economic essence and basic elements of Islamic finance system that distinguish it from traditional systems?

What challenges and opportunities does the Austrian market present for Islamic finance driven by FinTech innovations?

What potential impacts could FinTech-based Islamic finance have on the growth and competitiveness of the Austrian financial system?

Overview of the Document

This thesis provides an in-depth exploration of Islamic finance and its integration with FinTech in Austria. Chapter 1 delves into the formation and development of Islamic financial systems, comparing them with traditional Western financial models and discussing the unique aspects of Islamic finance. Chapter 2 focuses on the convergence of FinTech and Islamic finance, examining the evolution of FinTech, its role in Islamic finance, and the current state of these sectors in Austria. Chapter 3 addresses the challenges and opportunities in integrating FinTech into Islamic finance and the feasibility of developing FinTech within the Islamic finance market in Austria. This comprehensive study not only provides a deep understanding of Islamic finance and its interaction with modern financial technology but also offers insights into the potential and challenges of this integration in the Austrian financial landscape.

Chapter 1. Formation and development of the Islamic financial system

1.1 The essence and features of Islamic and traditional Western financial systems

The landscape of global finance is diverse, encompassing various models and systems, each with its unique characteristics, principles, and operational mechanisms. Among the most prominent and widely discussed in the literature are the Anglo-Saxon (conventional) and German traditional financial systems. The former, Anglo-Saxon system, deeply rooted in Western capitalist economies, is characterized by its emphasis on maximizing shareholder value, focusing on profitability, and managing financial risks through diverse instruments and market-driven strategies (Nock & Coron, 2015). The German social market economy is known for its strong labor market with industry-wide wage bargaining, employee representation, and quality industrial training. Traditionally, its financial structure favored long-term investments, with funding primarily through banks. This model, characterized by a highly coordinated market economy (Grahl & Teague, 2004).

In contrast, Islamic finance, should be guided by the principles of Sharia law, eschews interest (riba) and speculative activities (gharar), promoting risk-sharing, ethical investing, and asset-backed financing. These models often emphasize social and community development, financial inclusion, and sustainable banking practices, presenting a contrast to both conventional and Islamic banking in terms of their objectives, methodologies, and impact (Harahap et al., 2023).

The paragraph is devoted to a comprehensive study of the little-studied and at the same time relevant concept of the Islamic financial system along with other dominant financial systems in the world economy and their comparative analysis.

1.1.1 Islamic financial system

Foundations and Principles

Islamic finance is based on the principles of Sharia, the Islamic law derived from the Quran and the Hadith. Central to its operation is the prohibition of interest (riba), which is considered exploitative and unjust. Instead, Islamic finance emphasizes ethical investing, risk-sharing, and asset-backed financing. Transactions must avoid uncertainty (gharar) and speculative activities (maysir), ensuring that they are based on real economic activities. The ethical dimension of Islamic finance also mandates contributions to social welfare and forbids investment in harmful industries like alcohol and gambling. These principles aim to promote fairness, transparency, and social justice in financial dealings (Arshed et al., 2023).

The Islamic financing model contributes to limiting the subordinate position of the real sector to the interests of banking structures, which is typical of the traditional banking system (Table 1).

Operational Models

Islamic banking claims to structly adhere to Shariah law. This compliance is a distinctive feature, with the system being strongly restricted by Shariah. The laws are derived from the Quran and the Sunnah, and Islamic bank experts must refer to these sources, along with Ijma (consensus of scholars) and Qiyas (analogical deduction), to assess the acceptability of economic transactions (Hallaq, 2005). Islamic finance emphasizes profit and loss sharing and asset-backed trading or equity financing. This approach contrasts with the interest-based, debt-financing model of conventional banking. Islamic banks manage deposits within a profit-loss sharing concept, unlike conventional banks that guarantee fixed profits (Abasimel, 2023). Islamic finance prohibits riba, or interest, which is a fundamental difference from conventional finance. This prohibition extends to trading in financial risk, as it is seen as a form of gambling, forbidden in Islam (Abasimel, 2023).

Islamic banking and finance are based on a comprehensive system of ethics and moral values stemming from the Islamic religion. This ethical foundation guides all financial dealings in the Islamic system (Abasimel, 2023).

The goal of Islamic banking is to achieve greater justice and socio-economic development. By promoting risk-sharing instead of debt-financing, Islamic finance aims to reduce poverty and inequalities, serving as a tool to foster economic growth and human well-being (Abasimel, 2023).

Resilience and Stability

Islamic banks have shown stronger growth than conventional banks during financial crises in almost all countries. This suggests that Islamic banks made a greater contribution to macroeconomic and financial stability by making more credit available. The total assets in the Islamic finance industry grew to an estimated USD 1.2 trillion by the end of 2011, demonstrating its inherent resilience (Abasimel, 2023). The Islamic banking system is considered more stable compared to conventional banking as it cannot create money, thus being non-inflationary. This stability is further enhanced by the fact that Islamic banks do not offer fixed-value securities to investment account holders, allowing for risk-sharing in macroeconomic or bank-specific crises (Abasimel, 2023).

The Islamic banking system results in better risk distribution since the risk is shared between the financier and the entrepreneur. This approach is believed to direct financial resources to the most productive investments, increasing the efficiency of resource allocation (Abasimel, 2023).

Islamic banking is considered more efficient in operations, stabilizes the economy, presents less moral hazard, and is more conducive to poverty alleviation. Its development is closely tied to the developing economy and demand worldwide, contributing significantly to economic growth (Abasimel, 2023). Studies indicate that Islamic banking positively contributes to macroeconomic stability in both developing and developed countries. It is believed to provide the same contributions to the financial system and the economy as conventional banks, with some relative advantages (Abasimel, 2023).

Comparative Studies with Conventional Banking

Islamic banks share the loss that customers may incur and do not require collateral, contrasting with conventional banks that focus on collateral for credit. Islamic banks handle various types of risks differently compared to conventional banks, including credit risk, market risk, liquidity risk, operational risk, and legal risk. For example, Islamic banks face a lower degree of market volatility and additional compliance with Shariah rules (Abasimel, 2023).

The Islamic banking system is considered more stable and non-inflationary compared to conventional banking. Islamic banks cannot create money, which contributes to their relative stability. Additionally, Islamic banks' focus on equity and debt finance simultaneously reduces risks of moral hazard and adverse selection, making them more efficient in monitoring and surveillance (Abasimel, 2023).

Conventional banks typically favor financing low-risk activities with adequate collateral, whereas Islamic banks, as noted by Abasimel (2023), tend to finance viable projects, including those with reasonable risk-return profiles, even in the absence of substantial collateral. This approach contrasts with the Murabaha method in Islamic financing, critiqued by (Shah, 2022), where banks earn a fixed profit without risk-sharing. Shah's critique highlights issues like the transfer of risks to agents and potential conflicts with Shariah principles, emphasizing the need for Islamic banks to adhere to Shariah guidelines for ethical practices. Additionally, Islamic banking, with its diverse profit-sharing techniques and broader financial access, plays a significant role in fostering entrepreneurship and economic development.

1.1.2 Anglo-Saxon financial system

Historical Background and Evolution

The origins and development of Anglo-Saxon finance, or conventional banking, can be traced back to the early phases of industrialization and the rise of capitalism in Western Europe and the United States. This financial model evolved from the simple practice of safeguarding gold and valuables into a complex system of credit creation, financial intermediation, and investment. The term "Anglo-Saxon" finance often refers to a system characterized by liberal market practices, minimal government intervention, and an emphasis on capital markets. This model saw significant growth and evolution, particularly during the 19th and 20th centuries, as banks became pivotal in supporting industrial expansion, international trade, and economic development (Rathnayake, 2016).

Core Principles and Practices

The core of Anglo-Saxon finance revolves around three key principles: profit maximization, risk management, and maximizing shareholder value. Profit maximization remains the primary goal, driving banks to engage in various lending, investment, and financial service activities. Risk management is crucial, involving the assessment and mitigation of financial risks to ensure stability and long-term profitability. Shareholder value is another cornerstone, where decisions and strategies are often evaluated based on their potential to enhance shareholder wealth. These principles collectiv.ely guide the operational strategies and decision-making processes in conventional banking (Abasimel, 2023)

Impact of Regulatory Frameworks

The performance and stability of Anglo-Saxon finance are significantly influenced by regulatory frameworks and economic conditions. Studies by Goddard et al. (2004) and Al Tamimi (2010) have shown how regulatory policies, such as capital requirements, reserve ratios, and compliance standards, play a vital role in shaping banking practices and risk profiles. Economic conditions, including interest rates, inflation, and economic growth, also have profound impacts on bank performance. These studies suggest that while regulations aim to ensure stability and protect depositors' interests, they can also impose constraints on bank profitability and operational flexibility.

Challenges and Criticisms

Despite its widespread adoption and success, Anglo-Saxon finance faces several criticisms and challenges. One major criticism is its susceptibility to economic cycles, with banks often experiencing significant stress during economic downturns, leading to crises like the 2008 financial meltdown. Ethical concerns have also been raised, particularly regarding the social and environmental impacts of banking activities, and the prioritization of profits over societal welfare. Systemic risks, stemming from interconnectedness and the "too big to fail"[1] phenomenon, pose another challenge, highlighting the need for more robust risk management and regulatory oversight (Fiordelisi et al., 2023).

In conclusion, while Anglo-Saxon finance has played a crucial role in the development of modern economies, its evolution has been shaped by a complex interplay of market dynamics, regulatory policies, and global economic conditions. The model's focus on profitability, risk management, and shareholder value has driven innovation and growth in the banking sector. However, the challenges and criticisms it faces call for a continuous reevaluation and adaptation of its practices to ensure sustainable and responsible financial services.

1.1.3 German financial system

The German financial system, as (Schmidt & Tyrell, 2003) described, is traditionally a bank-based or bank-dominated financial system. This means that banks, rather than capital markets, play a

[1] “Too big to fail” suggests that an entity so vital to a financial system that a government would not allow it to go bankrupt because of the significance of the economic consequences (Young, 2023) .

significant role in providing corporate financing, offering various financial services, and risk management. Long-lived financial entities, such as banks and insurance firms, can accomplish intertemporal risk smoothing by accumulating assets. They might build reserves in good times and deplete them in worse (Schmidt & Tyrell, 2003). It's worth noting that not strictly profit-oriented banks play an important role in the German financial system. The German financial system can be distinguished from that of other countries by its emphasis on intertemporal risk smoothing as opposed to cross-sectional risk sharing. Inter-temporal risk smoothing refers to managing risk over time, an approach offered by financial intermediaries such as banks through mechanisms like asset accumulation. The German financial system is also characteristically complemented by a social security solution, particularly a public Pay-As-You-Go[2] pension system. This offers another approach for managing risks, this time relating to retirement income. The paper suggests that events in recent decades such as the stock market boom and the influence of the "new economy bubble" of the late 1990s have led the German system towards a transition to a more capital market-based model. The future trajectory of this transition is unclear, and the authors suggest it could be a rough and long process.

1.1.4 Other financial systems

Community Banking and Microfinance

Community banking and microfinance represent pivotal elements in the broader spectrum of financial models, primarily focusing on financial inclusion, local development, and support for low-income groups. Community banks, often deeply rooted in their local areas, prioritize the financial needs and growth of the communities they serve. Unlike larger commercial banks, their decisions and operations are closely aligned with local interests, contributing to the economic development of the region (Mittal et al., 2023). Microfinance institutions (MFIs) play a crucial role in providing financial services to unbanked or underbanked populations, typically offering small loans, savings accounts, insurance, and money transfer services. These institutions are instrumental in empowering

[2] A pay-as-you-go pension plan is a retirement system where the plan beneficiaries determine how much they wish to contribute, either by having the set amount periodically withdrawn from their salary or by paying the desired amount in one lump payment (Kagan, 2021)

economically disadvantaged groups, particularly in developing countries, by providing them with the means to start small businesses, improve their living conditions, and break the cycle of poverty. Both community banks and MFIs are characterized by their client-centered approach, often providing not just financial services but also education and support to their customers (Sohn & Ju, 2023).

Cooperative Banks

Cooperative banks distinguish themselves through their member-driven focus, the claim of democratic decision-making processes, and emphasis on community welfare. Owned and governed by their members, who are both customers and stakeholders, these banks reinvest their profits back into the community, supporting local projects and social causes. The democratic structure of cooperative banks ensures that each member has a voice in key decisions, regardless of the size of their deposits or investments. This model fosters a sense of community and mutual support, often leading to higher levels of customer satisfaction and loyalty. Cooperative banks typically offer similar services to conventional banks but with a more personalized and community-focused approach (Marodon, 2022).

Innovative Models in FinTech

The rise of financial technology (FinTech) has introduced innovative models in both conventional and Islamic finance, revolutionizing how financial services are delivered and accessed. FinTech startups have disrupted traditional banking models by offering digital solutions for payments, lending, investment, and personal financial management. These technologies have enabled greater accessibility, convenience, and efficiency, often at lower costs compared to traditional banking services. In Islamic finance, FinTech has facilitated the development of Sharia-compliant financial products, expanding the reach and appeal of Islamic banking. Digital platforms now offer Islamic microfinance, peer-to-peer (P2P) lending, and crowdfunding, aligning modern technology with traditional Islamic principles. FinTech's agility and innovation have thus been instrumental in bridging gaps in financial services and catering to previously underserved or niche markets (Liang, 2023).

1.1.5 Comparative Analysis

When compared to conventional and Islamic financing, these alternative models — community banking, microfinance, cooperative banks, and FinTech — present a different set of objectives, methodologies, and impacts. While conventional and Islamic banks are primarily profit-driven (albeit with differing underlying principles), community banks, MFIs, and cooperative banks are more focused on social objectives and community development. Their methodologies also differ: conventional and Islamic banks rely heavily on large-scale, standardized financial products and services, whereas alternative models emphasize personalized, community-specific solutions. In terms of impact, while conventional and Islamic banks significantly influence national and global economies, alternative models have a more direct impact on local communities and individual livelihoods.

Characteristic	Islamic bank	Conventional bank
Position of moral values and religious traditions	Belief principle observance	Material benefits getting
Percentage usage	No	Includes
The speculative nature of operations	No	Includes
Trading in securities	Passive	Active
Key projects	Innovative	Credit
Borrow assessment criteria	Ethical and financial	Financial
Social orientation	High	Low
Investor profit guarantees	Does not guarantee the rate of return, dependence on the project success	Guaranteed profit as a percentage
Profits and risks separation principle	Project reliability and profitability	Borrower creditworthiness

Table 1. The main differences between Islamic and traditional financing
Source: compiled by the Author

Islamic banks prioritize moral values, social responsibility, and the success of innovative projects, assessing borrowers on both ethical and financial grounds. In Islamic finance profits for investors are not guaranteed but are tied to the actual success of projects, reflecting a shared risk model (table -1). Such principles contrast with conventional banking, which emphasizes material benefits, interest-based earnings, speculative activities, and guaranteed returns, with a primary focus on financial assessment and creditworthiness.

FinTech, straddling both the conventional and Islamic finance domains, stands out for its transformative potential, offering new avenues for financial inclusion and the democratization of financial services. Its impact is seen in the increased efficiency and accessibility of financial services, challenging traditional banks to innovate and adapt. In summary, these alternative financing models complement the larger financial ecosystem, each serving unique needs and contributing to a more inclusive and diverse financial landscape (Felysha, 2023).

1.1.6 Synthesis and Future Development

Synthesis of Findings

The exploration of different banking models — Anglo-Saxon finance, Islamic finance, and other alternative financing models like community banking, microfinance, cooperative banks, and FinTech — reveals a rich tapestry of methodologies, principles, and impacts. Anglo-Saxon finance, with its emphasis on profitability and shareholder value, operates largely within a framework of risk management and capital maximization, driven by market forces and regulatory environments. Islamic finance, governed by Sharia principles, eschews interest and speculative activities, focusing instead on ethical investing, risk-sharing, and social justice. Alternative models like community banking and microfinance prioritize financial inclusion and local development, often placing social objectives above pure profit motives. Cooperative banks blend these approaches, emphasizing member-driven services and community welfare. FinTech, cutting across these traditional categorizations, brings innovation and accessibility, reshaping the financial services landscape.

Future Trends and Challenges

The financial sector is poised for continued evolution, driven by technological advancements, changing regulatory landscapes, and shifting economic power dynamics. For conventional and Islamic banking, digital transformation and the integration of artificial intelligence and blockchain technologies present both opportunities and challenges. These technologies offer potential for enhanced efficiency, better risk management, and improved customer experiences but also raise concerns around cybersecurity, data privacy, and the displacement of traditional banking jobs.

In the realm of alternative finance, the challenge lies in scaling impact while maintaining a focus on community and social objectives. For microfinance and community banks, balancing sustainability with social goals remains a critical issue. FinTech's challenge is to ensure that its disruptive potential does not exacerbate existing inequalities in financial access.

Implications for Global Finance

The diverse banking models contribute uniquely to global financial stability and economic development. Conventional banking, with its significant scale and reach, plays a crucial role in global economic systems but must adapt to changing societal expectations and stricter regulatory regimes. Islamic finance offers a model for ethical and risk-sharing based finance, appealing not just to Muslim populations but also to those seeking ethical financial practices. Alternative financing models, with their focus on inclusivity and local development, can drive grassroots economic growth and contribute to reducing financial inequality. The implications for regulatory policies are significant. There is a growing need for regulatory frameworks that accommodate the unique features of each model, ensuring stability and fairness while fostering innovation. For global finance, the coexistence and interaction of these diverse models present opportunities for learning, adaptation, and collaboration, contributing to a more resilient and inclusive global financial system.

In conclusion, the diverse banking models – conventional, Islamic, and alternative forms like community banking, microfinance, cooperative banks, and FinTech – each contribute uniquely to the global financial ecosystem. They differ in their core principles, operational methodologies, and impact on economies and communities. While conventional and Islamic banks are more profit-oriented, the alternative models prioritize social objectives and community development. The evolving landscape of global finance, influenced by technological advances and changing regulatory frameworks, highlights the need for adaptive and inclusive financial systems that cater to a variety of economic and social needs, fostering overall economic growth and stability.

1.2 The regulation of Islamic finance and the role of financial institutions in this context

Regulatory Framework

The regulatory framework of Islamic finance, distinct in its integration of Islamic theological principles with modern financial practices, is crucial for the sector's integrity and growth. The International Monetary Fund (2018) highlights the Core Principles for Islamic Finance Regulation (CPIFR), developed by the Islamic Financial Services Board (IFSB) in collaboration with the Basel Committee on Banking Supervision. These principles are specifically tailored to address the unique operational and risk profiles of Islamic banks, distinguishing them significantly from their conventional counterparts (International Monetary Fund, 2018).

The CPIFR (Core Principles for Islamic Finance Regulation) encompasses a comprehensive range of Islamic banking aspects, including risk management, Shariah compliance, and governance. Key to these principles is the acknowledgment of specific risks inherent in Islamic finance, such as those associated with Profit-and-Loss Sharing (PLS) arrangements and the management of investment account holder funds. These risks require distinct approaches compared to conventional banking, emphasizing the need for a deep understanding of Islamic financial products and their market implications (International Monetary Fund, 2018).

Moreover, the CPIFR advocates for robust Shariah governance frameworks. This involves not only ensuring compliance with Islamic law in banking operations but also addressing the ethical dimensions of financial transactions. The principles call for transparency, accountability, and fairness in all dealings, reflecting the ethical ethos at the heart of Islamic finance (International Monetary Fund, 2018).

As the financial landscape evolves, particularly with the advent of FinTech, the regulatory framework for Islamic finance also needs to adapt. The integration of technology in Islamic finance – through blockchain-enabled Shariah-compliant transactions, digital Islamic banking platforms, and other FinTech innovations – presents new opportunities and challenges. These technological advancements necessitate a dynamic and adaptable regulatory framework, capable of addressing emerging risks and harnessing FinTech's potential to enhance financial inclusion and efficiency in Islamic finance (International Monetary Fund, 2018).

Role of Financial Institutions

Financial institutions in the Islamic finance sector are at the forefront of implementing regulatory frameworks and driving innovation in product development and service delivery. Central to this role is the Shariah Supervisory Board (SSB), comprising Islamic scholars and financial experts. The SSB's mandate extends beyond ensuring Shariah compliance; it also involves guiding the development of new Shariah-compliant financial products and services, aligning them with the evolving needs of the market and technological advancements (Kok et al., 2022).

These institutions face the dual challenge of maintaining strict adherence to Islamic principles while innovating to stay competitive and relevant. The integration of FinTech solutions, such as mobile banking applications, peer-to-peer Islamic financing platforms, and blockchain technology in product offerings, is transforming the landscape of Islamic banking. These technologies offer pathways to greater financial inclusion, enhanced customer experience, and operational efficiencies. For instance, blockchain technology can provide transparent, secure, and efficient means of conducting Shariah-compliant transactions, potentially revolutionizing aspects like Zakat (almsgiving) collection and distribution, and Islamic charitable endowments (Waqf) management (Kok et al., 2022).

However, the incorporation of FinTech also brings new regulatory challenges and risks, particularly in cybersecurity, data privacy, and compliance with both financial regulations and Shariah law. Financial institutions must therefore be proactive in their approach, ensuring that their FinTech strategies are robust, secure, and compliant. This involves continuous learning, adaptation, and collaboration with regulators, FinTech firms, and other stakeholders in the Islamic finance ecosystem (Kok et al., 2022).

Challenges and Opportunities

The expansion of Islamic finance into new markets and its integration with global financial systems present both challenges and opportunities. A significant challenge is the fragmentation of Islamic financial systems across different jurisdictions, leading to inconsistencies in regulatory practices and interpretations of Shariah law. This fragmentation can result in regulatory and theological arbitrage, where differences in regulations and Shariah interpretations across jurisdictions may lead to uneven playing fields and potential exploitation of these differences (Kok et al., 2022).

To address these challenges, there's a growing need for harmonization of regulatory practices and Shariah interpretations. The IMF (2018) emphasizes the importance of global standards and collaboration among standard-setting bodies, such as the IFSB and the Basel Committee, to promote financial stability and equitable growth in Islamic finance. Such collaboration can help in developing a more unified and consistent regulatory framework, reducing the potential for regulatory arbitrage, and fostering a more integrated global Islamic finance market (International Monetary Fund, 2018).

Moreover, the opportunities presented by the expansion of Islamic finance are substantial. These include tapping into new customer bases, contributing to financial inclusion, and aligning with global sustainable development goals. Islamic finance's emphasis on social welfare and ethical investment aligns closely with contemporary global financial concerns, offering a model for sustainable and equitable economic development (Kok et al., 2022).

The regulatory framework, role of financial institutions, and the challenges and opportunities in Islamic finance are intricately linked and vital for the sector's sustainable growth. The dynamic nature of this field, influenced by evolving market demands and technological advancements, calls for continuous adaptation and innovation. As Islamic finance grows in global significance, its contribution to financial stability, ethical banking, and economic development becomes increasingly relevant. The sector's future will likely be shaped by how effectively it navigates these challenges and leverages its unique strengths in a rapidly changing financial landscape (Kok et al., 2022; International Monetary Fund, 2018).

Experience the Legal Framework of Islamic Finance in Austria

In Austria, the integration of Islamic finance into the existing legal system presented a multifaceted challenge, evolving significantly since 2010. Before this year, Austrian law was not equipped to support the operations of Islamic finance, hindering the establishment of Islamic banking. This changed with the initiative of the Islamic Information and Documentation Center of Austria (IIDZ Österreich), leading to a notable development in May 2010. The Austrian Standards Institute, leveraging expertise from specialists in Islamic finance and law, formulated "ON-Regel 142001-1," a groundbreaking normative document in Europe tailored for Islamic financial instruments. This standard, designed to align with Shari'a laws, marked a significant stride in the harmonization of Islamic financial practices with the Austrian legal framework.

Furthermore, the "ON-Regel 142001-2" standard, concerning Shari'a-compliant insurance products, was also established, showcasing Austria's expanding commitment to Islamic finance. These developments, as highlighted by Günther Ahmed Rusznak of IIDZ and Dr. Karl Grün from the Austrian Standards Institute, illustrate Austria's efforts to adapt its financial sector to accommodate Shari'a principles while ensuring compliance with national laws. These standards aimed to cultivate a sense of security and acceptance among various stakeholders, including customers, financial institutions, and government bodies.

However, this progressive integration faced opposition, notably from the Turkish cultural community in Austria (TKG). The TKG raised concerns about the potential implications of integrating a religious-based financial system alongside the secular Austrian legal system, fearing it might lead to a form of legal pluralism. Their apprehensions were rooted in the broader European legal context, citing potential conflicts with human rights and democratic principles as established in various European Union treaties and rulings by the European Court of Human Rights.

This resistance from the TKG underscores the complex interplay between religious financial practices and secular legal systems in a European country like Austria. The case of Islamic finance in Austria, as detailed in Hajjar's 2019 analysis, serves as a pertinent example of the challenges and considerations involved in adapting a national financial and legal system to accommodate diverse cultural and religious practices.

In conclusion, the evolution of Islamic finance in Austria represents a significant example of how a country can adapt its financial and legal frameworks to accommodate diverse and specialized financial systems. The development of standards such as "ON-Regel 142001-1" and "ON-Regel 142001-2" signifies Austria's commitment to integrating Islamic finance principles within its existing financial system, addressing both the unique requirements of Sharia-compliant products and the regulations of the national legal system.

However, this integration has not been without challenges, particularly in balancing the religious aspects of Islamic finance with the secular nature of Austria's legal framework. Opposition from certain groups highlights the complexities and sensitivities involved in introducing a religiously-oriented financial system into a predominantly secular context. These challenges underscore the importance of careful consideration and collaboration among various stakeholders, including religious groups, financial experts, and legal authorities, to ensure that such integration is successful and mutually beneficial.

Austria's experience with Islamic finance serves as an instructive model for other countries navigating similar paths. It demonstrates the potential for creating a harmonious balance between diverse financial practices and a unified legal system, while also acknowledging the intricacies and potential hurdles in this process. As Islamic finance continues to grow on a global scale, the insights gained from Austria's approach could provide valuable guidance for other nations looking to embrace this form of finance in their own financial landscapes. This evolution is indicative of a broader movement towards financial inclusivity and the accommodation of diverse economic practices in a globalized world.

1.3 Islamic management values

The rules of the human resource management Islamic finance were originally established by the Prophet Muhammad in Medina (Saudi Arabia) with the formation of the foundations of an Islamic community.(Hallaq, 2005) This control system due to its simplicity laid the foundation for the development of civilization for many years to come. The peculiarity of the administrating of the Prophet Muhammad was Shura or seeking advice from someone who is able to give advice, since the Messenger of Allah also consulted with his associates on a number of issues about which there was no special indication in the Quran.

(Abbazi & Zarqan, 2019) argued that, since he was a prophet, followers fulfilled his decisions religiously, but the prophet was interested in Muslims consulting with each other to create the conditions and atmosphere for the meeting, participation, and consensus among believers.

Prophet Muhammad had a formal advisory council, including godly, knowledgeable, and wise followers to make decisions that could affect the Muslim community. Subsequent pious caliphs also supported the advisory body and resorted to public referendums to resolve certain issues (Abbazi & Zarqan, 2019). Later, when Islam began to spread to the south and north, east and west, it became necessary to introduce special provisions to guide the affairs of Muslims outside the Arabian Peninsula, but at the same time observe Islamic principles and follow the example of the Prophet Muhammad).

The basic principles of the Islamic banking functioning include the ban on riba, gharar, maysir and haram. According to Sharia, riba, the rate of interest on investments that was determined in advance or the increase expressed in other terms, not related to returns and not involving labor is prohibited (Munir & Saputra, 2022).

The ban on riba is based on the idea that usurious conduct does not result in the development of a product or the improvement of societal welfare. Profit-taking is encouraged in Islam, however the idea of social fairness requires that rewards or losses be in line with the contributions of borrowers and lenders (Hallaq, 2005).

Gharar is the sale of doubtful, unknown goods or the sale at an inappropriate price; goods without exact description or preliminary check; unequal barter exchange of goods, etc. gharar makes the contract null and void. Insurance and derivatives trades are characterized by a high level of unpredictability. As a result, these transactions are deemed illegitimate under Sharia law. It should be known that all business involves some level of risk and uncertainty. However, only significant uncertainty renders the contract null and void, whereas excessive and unjustifiable risk invalidates it (Hallaq, 2005).

Maysir, which means "gamble" in Arabic, is strictly banned in Islam. Maysir also covers unearned, casual income. In a broader sense, it might be viewed as a ban on capital flow with the intention of expanding reproduction without producing a tangible product, as is typical of the modern economy (Hallaq, 2005).

Haram in Arabic means “forbidden” and a ban on conducting or participating in activities related to the distribution of obscenities, alcoholic beverages, the manufacture and sale of idols, the provision of services to pagan temples, participation in gambling, etc.(Hallaq, 2005)

Therefore, the Sharia prohibits financial transactions related to the sale of arms, alcohol, tobacco products, pornography, pork production, taking bribes, and lending money at interest. The rules of the Islamic banking system prohibit unwarranted risk, interest, gambling, and gharar since income derived from such activities does not lead to a real increase in the welfare of the population (Abbazi & Zarqan, 2019).

The principles of business ethics and governance in Islam are based on the Holy Quran, the statements and actions of the Prophet Muhammad (p.a.). Many verses of the Quran tell about justice and fairness in commerce, courtesy and justice in labor relations, as well as encouraging people to acquire new skills and the desire to do their job in the best possible way so that it benefits both the individual and society as a whole. Islam emphasizes partnership and cooperation in the work, as well as deliberation in the decision-making process (Abusnahid, 2006).

Governance is crucial in Islam and appointing a leader is an indispensable step in most cases. The Prophet Muhammad said: "When the three are on their way, they must appoint one of them as their leader."

In Islam, living without work does not make sense, participation in economic activity is a duty (Yousef, 2001) Work is compulsory for those who are able to work, and self-reliance is a virtue that is a source of self-realization and success.

Regardless of what function a Muslim performs in his work all his actions should be carried out with the purpose of worshiping God, obtaining allowed (halal) income, as well as with the goal of living a good and decent life. According to this doctrine, labor relations (as well as corporate management) are founded on a belief system in which work is regarded through the lens of the social, economic, and religious obligations of every Muslim who is competent to serve as God's vicar on Earth. Managers must adhere to a number of moral ideals and conventions when doing human resource management in Islam. Human resource management in Islam is guided by values such as dependability, responsibility, honesty, discipline, devotion, hard work, cleanliness, collaboration, good conduct, thankfulness, and moderation. The passages of the Koran and the Sunna of the Prophet Muhammad affirm all of these ideas. Consider the basic principles of the Islamic human resource management system:

Consider the basic principles of the Islamic human resource management system:

1) *Intention (thoughts, niyat).*

In Islam, any human action must be accompanied by intentions. The Prophet Muhammad (peace be upon him) said: "Truly, all matters are judged by intentions, and each will receive what he intended to receive." Man was formed and gifted with will; he is accountable for changing his community. Ayat 11 surah 13 "Thunder" says: "Truly the Allah does not change the position of people until they change themselves."

This principle in human resource management is manifested, for example, in the fact that managers should not punish employees for making unintentional mistakes, nor should they punish or encourage primarily for deliberate goals, ideas, plans, and strategies, but rather for the outcomes of actions that can be committed under the influence of external factors beyond their control. It is also relevant to human resource planning and strategic management choices.

2) *Uninterrupted fear of God before the Almighty Allah (taqwa).*

When a person's heart is filled with fear of God, the person will refrain from unjust behavior and will order his soul to move from the state of an-nafs al-ammara (wicked, "stubborn" soul), which is a primitive stage that likens a person to an animal, to the state of an-nafs al-lavvama (condemning soul) is the stage in which a person realizes the existence of evil and the struggle between good and evil, while striving to repent and go, finally, to the highest level of an-nafs al-Mutminna (reassured soul, the level of the righteous), when the mind is in complete agreement with good deeds, piety and justice (Al-Attar, 2010).

Taqwa (fear of God) leads to perseverance in the search for truth and justice, because people are not afraid of anyone but God.

In the management of human resources the expression of constructive criticism and the search for advice becomes a common practice, in some situations, even a duty when abuses and misconduct are identified in any organization or community (Al-Attar, 2010).

3) *Kindness and care along with the feeling of the presence of God (ihsan).*

Ihsan is expressed in several things: in the donation of voluntary alms, in self-improvement and improvement of moral qualities, in the ability to forgive, in the fullness of faith and most importantly in doing good deeds.

Ihsan is also expressed in continuous struggle and zeal in achieving the contentment of the Almighty Allah and worshiping only the God as if you see Him and He sees you. This feeling inspires the person, prompts to behave in the best way without the need for any human supervision. The value of ihsan is related to the value of iman which is the key to Islamic moral qualities and is expressed in Faith in God.

In this framework, such an economic and social action is evaluated as having a moral and spiritual component as a method of performing good acts for someone and society as a whole, while adhering to the Almighty's direction on the production of material commodities, property, human expenditures, equality and social justice. Thus, production and consumption in society must adhere to particular standards and principles that address the questions of what is produced, how it is produced, and the human and societal costs associated with production and consumption (Al-Attar, 2010). Every action must be conducted with the intention of doing good and with a sense of God's presence.

4) Justice (adl).

Justice is a virtue that everyone should cultivate, regardless of whether he is a leader or a subordinate. The Holy Quran says: “O you who believe! Stay for the sake of Allah, testifying impartially and do not let the hatred of people push you to injustice. Be fair, for it is closer to piety. Fear Allah, for Allah knows what you are doing” (Sura 8, Ayah 5).

In Islam justice never affects personal interests and other considerations. Justice serves the purpose of protecting people's freedom and equality. In Islam, people are free in their beliefs. “There is no compulsion in religion” (Quran, sura 256, ayat 2).

All people are equal, regardless of gender, color, race, wealth, profession, status or knowledge. What really matters is their actions and deeds. The Prophet Muhammad made it clear that people are equal, saying: “There is no advantage of an Arab over a non-Arab, and no Arab over an Arab and white over black and black over white except in piety” (Al-Attar, 2010).

Piety is the one standard that is without exception, and no one knows a man's level of piety other than God. Justice leads to equality, and in order to preserve justice and equality inside an organization, persons in positions of leadership must be humble. Employees are treated fairly in firms that value justice, and they are encouraged equally and justly. Managers treat their subordinates with respect and civility, never glancing down to dismiss their ideas and recommendations. Instructions, rules, regulations, and processes are carried out clearly and efficiently in such an organization (Al-Attar, 2010).

5) Trust (amana).

The concept of trust is a core value that regulates social relations, since each person is responsible for his own affairs in society. The Holy Quran says: “O Believers! Do not betray God and His messenger! [Otherwise, it will only lead you to the fact that] you will become [for others, as well as for yourself] unreliable [in the duties and powers entrusted to you, in property transferred to storage or in non-disclosure of other people's secrets]. Knowing that you don’t do it [and what happened by coercion, rashness or forgetfulness will be forgiven by the grace of the Most High]” (Sura 8, Ayah 27). Trust creates an opportunity for deliberation and delegation of powers and responsibilities to employees.

The leader is an amine (or attorney), he must justify the trust that his superiors and subordinates have shown him. Any act of inappropriate or misuse of resources is considered a violation of trust. The organization is a trust for those who own it as well as for those who work in it (subordinates) (Al-Attar, 2010).

6) Truthfulness (sidq).

Sidq signifies the need to do and declare what we know to be correct. It is prohibited in Islam to mislead under any circumstances. Many passages in the Qur'an highlight the benefits and values of sincerity. Managers and subordinates are cautioned not to be influenced by personal sentiments, which might divert them from the right road of justice, compassion, and trust. Managers are exhorted to be patient in carrying out their contractual obligations, to be honest and hardworking, and to seek the Almighty's favor and mercy. Honesty and dependability are critical for efficient management. They keep individuals from abusing the resources entrusted to them. Love of truth symbolizes the concept of personal accountability for each uttered word and assists the organization in assessing and evaluating work, as well as determining the root causes of existing problems (Al-Attar, 2010).

Conscientiousness in self-improvement (itqan).

Itgan implies continuous human inner struggle for self-improvement, the desire to make their work better which in turn requires the person to constantly improve the quality of products and services through training, gaining new knowledge and skills. This value is closely related to the state of enthusiasm (passionate spiritual enthusiasm), the pursuit of excellence (surah al-Falah) and impeccability. Therefore, creativity in a person's life is of great importance because of the desire to improve something or to succeed in something, the desire to do what is good for yourself and for society.

In an organization the desire to do something better requires managers and employees to work continuously and improve the quality of their products and services by encouraging of education and creativity, training, introducing and promoting innovation (Al-Attar, 2010).

1.4 Principles of Islamic financial instruments

Islamic financial instruments are designed within the framework of Sharia law, which emphasizes ethical finance, social justice, and economic prosperity for the community. These instruments are characterized by risk-sharing, asset-backing, and the prohibition of interest (riba), excessive uncertainty (gharar), and speculative transactions (maysir). Below is a detailed description of conventional or traditional and Islamic instruments:

i. Mudarabah (Profit-Sharing Partnership): This is a partnership where one party provides capital and the other provides expertise to carry out a business venture. Profits are shared per an agreed ratio, while losses are borne by the capital provider, unless due to the manager's misconduct or negligence. This instrument is foundational in Islamic venture capital initiatives (Bhala, 2013).

Example: An investor funds a retail business with $100,000. The entrepreneur manages the business, and they agree to split profits at 70% for the investor and 30% for the entrepreneur.

ii. Musharakah (Joint Venture): All partners contribute capital and share in the profits and losses of a joint enterprise. This instrument is akin to equity financing and encourages entrepreneurial ventures by sharing the risk and reward among all partners (Bhala, 2013).

Example: Four investors start a property development business, contributing varied amounts but agreeing to divide profits equally.

iii. Murabaha (Cost-Plus Financing): It is a sales contract where the financier buys the goods and sells them to the client at an agreed markup. The price includes the cost incurred by the financier and an agreed profit margin. Murabaha is widely used for asset financing, such as home or car purchases (Bhala, 2013).

Example: A customer buys a vehicle through a Murabaha agreement where the bank purchases the vehicle for $20,000 and sells it to the customer for $22,000, to be paid over 12 months.

iv. Ijarah (Leasing): Similar to conventional leasing, Ijarah involves the bank leasing an asset to a client for a specified period against specified installments. The bank retains ownership of the asset, while the client benefits from its use (Bhala, 2013).

Example: A company leases manufacturing equipment from a bank for an annual fee, with the bank maintaining ownership of the equipment.

v. Istisna (Commissioned Manufacture): Istisna is a contract for manufacturing or constructing assets, with the price paid in advance and the goods delivered later, often used for long-term projects (Usmani, 2021).

Example: A real estate developer pays a contractor to build an apartment complex, with payment made in stages based on construction milestones.

vi. Sukuk (Islamic Bonds): Sukuk are investment certificates that represent ownership in an asset, its usufruct, or investment in the assets of particular projects or special investment activity. Unlike conventional bonds, sukuk are asset-backed and involve shared business risk (Bhala, 2013).

Example: A corporation issues sukuk to finance the expansion of its operations, with investors receiving a share of the profits from the expansion.

vii. Salam (Advance Payment): Salam is a forward sale contract where the buyer pays in advance for specified goods to be delivered at a later date, commonly used in agricultural financing (Usmani, 2021).

Example: A food processing company pays a farmer in advance for a future delivery of wheat harvest.

viii. Qard Hasan (Benevolent Loan): This is a no-profit, no-loss loan extended on the basis of goodwill, intended to help those in need. The borrower is only required to repay the principal amount (Bhala, 2013).

Example: A charitable organization provides interest-free loans to small entrepreneurs, who repay only the principal amount once their businesses start earning.

ix. Wakalah (Agency): An agreement where one person appoints another to act as their agent in a business or financial transaction (Usmani, 2021).

Example: An investor appoints a bank as an agent to invest in a portfolio of Shariah-compliant stocks, with the bank earning a predetermined fee.

x. Hawala (Debt Transfer): An informal method of transferring money based on trust, without any physical movement of cash (Usmani, 2021).

Example: An expatriate sends money to his family through a hawala dealer, who arranges for a corresponding payment in the family's country.

xi. Takaful (Islamic Insurance): Takaful is a cooperative insurance scheme where members contribute to a pool to guarantee each other against loss or damage. It is based on the principles of mutual protection and shared responsibility, and is an ethical alternative to conventional insurance (Bhala, 2013).

Example: Vehicle owners contribute to a takaful fund, which is used to cover any member involved in a traffic accident.

The table 2 below sets out a summary of the financial instruments' comparison.

Islamic finance		**Traditional finance**	
instrument/mechanism	***principle***	***instrument/mechanism***	***principle***
Mudarabah	Profit and Loss Sharing	Venture Capital	Equity Financing -
Musharakah	Joint Venture	Equity Financing	Share Issuance
Murabaha	Cost-Plus Financing	Cost-Plus Financing	Markup Pricing
Ijarah	Leasing	Leasing	Leasing
Istisna	Manufacturing Contract	Contract Manufacturing	Outsourcing Production
Sukuk	Investment Certificates	Bonds	Debt Investment
Salam	Advance Payment	Futures Contracts	Risk Management
Qard Hasan	Benevolent Loan	Interest-Free Loans	Non-Profit Lending
Wakalah	Agency	Agency Agreement	Representative Dealings

Islamic finance		Traditional finance	
instrument/mechanism	***principle***	***instrument/mechanism***	***principle***
Hawala	Debt Transfer	Money Transfer Systems	Financial Transfer
Takaful	Islamic Insurance	Insurance	Risk Protection

Table 2. Comparison of Conventional and Shariah Compliant Financial Instruments
Source: compiled by the Author

The table 2 compares financial instruments and mechanisms between Islamic finance and traditional finance, highlighting the underlying principles of each.

- Islamic financial instruments are structured to comply with Shariah law, which prohibits interest (Riba) and emphasizes ethical and equitable financial transactions. These instruments are based on principles like profit and loss sharing, cost-plus financing, asset leasing, and risk sharing.
- Traditional financial instruments, on the other hand, are based on conventional finance principles that often involve the payment of interest, the issuance of debt or equity for financing, and risk transfer mechanisms.

Both systems provide various mechanisms for financing, investment, and risk management, but the fundamental difference lies in the ethical and operational approach, with Islamic finance avoiding certain practices that are commonplace in traditional finance, such as the payment of interest.

In assessing the landscape of financial instruments, a stark contrast emerges between the paradigms of Islamic and traditional finance. The former, rooted in Shariah law, eschews the concept of interest (riba) and is characterized by its emphasis on ethical transactions and risk-sharing. This is manifested in the principles underpinning Islamic financial instruments, such as Mudarabah and Musharakah, which promote shared entrepreneurial ventures and equitable distribution of profits and losses. These instruments foster a symbiotic relationship between capital providers and entrepreneurs, aligning their interests in a manner that transcends the purely financial and infuses ethical considerations into the fabric of financial dealings.

Conversely, traditional financial mechanisms operate within a framework that often revolves around the accrual of interest and the securitization of debt. Instruments such as bonds and conventional insurance policies exemplify this approach, prioritizing the transfer of risk and the maximization of returns through interest.

The juxtaposition of these two systems illuminates the distinctive ethical foundation of Islamic finance. While both frameworks provide robust methodologies for financing and investment, the principles of Shariah law inject a moral dimension into financial transactions, fostering a system that is not only commercially viable but also socially responsible and equitable.

In conclusion, the comparative analysis of Islamic and traditional financial instruments reveals a profound divergence in their foundational principles and operational methodologies. Islamic finance, with its adherence to Shariah law, offers a unique approach that integrates financial activities with ethical imperatives, providing a compelling alternative to the interest-based structure of traditional finance. This serves to enrich the financial sector by catering to the demands of a diverse array of consumers and investors, seeking not only financial returns but also alignment with their ethical and religious values.

Chapter 2. Convergence of FinTech and Islamic finance

2.1 An evolution of FinTech and its role in Islamic finance

FinTech, a portmanteau of "financial technology" has become an indispensable part of the financial services sector. It refers to the application of technology to improve financial activities (Hazik & Hassnian, 2019). The sector has evolved through different eras, paralleling the phases of the industrial revolution. The first era, **FinTech 1.0**, was characterized by infrastructural development, including the introduction of technologies like the first trans-Atlantic cable and ATM (Automated Teller Machine). Key technologies like the telegraph, transatlantic cable, steamships, and railroads enabled financial transactions and payments across borders. The invention of the pantelegraph and the introduction of the telegraph were significant milestones. This period was characterized by analog technologies and was largely non-globalized (Hazik & Hassnian, 2019). This era was limited to analog technologies and remained a non-globalized (Hazik & Hassnian, 2019).

The transition to **FinTech 2.0** marked the shift from analog to digital, leading to a more globalized approach. However, traditional regulatory financial institutions still dominated the industry. period marked the transition from analog to digital, leading to a more globalized approach. The era saw the development of significant financial technologies like the Clearing House Interbank Payments System (CHIPS), NASDAQ, and the Society for Worldwide Interbank Financial Telecommunications (SWIFT) (Hazik & Hassnian, 2019).

The 2008 Global Financial Crisis was a turning point, leading to the emergence of **FinTech 3.0**. This era is characterized by the entry of new market players and start-ups, offering innovative financial services and products. The crisis led to increased public perception, regulatory scrutiny, and political demand for new financial solutions. This era demonstrated that financial services could be provided by non-banks as well, leading to a significant growth in the FinTech sector (Hazik & Hassnian, 2019).

FinTech's most active sectors include data analytics, artificial intelligence (AI), digital payments, digital currencies, crowdfunding, and peer-to-peer (P2P) finance (Hazik & Hassnian, 2019).

The annual investments into FinTech companies from the year 2012 to 2022 are quantitatively depicted.

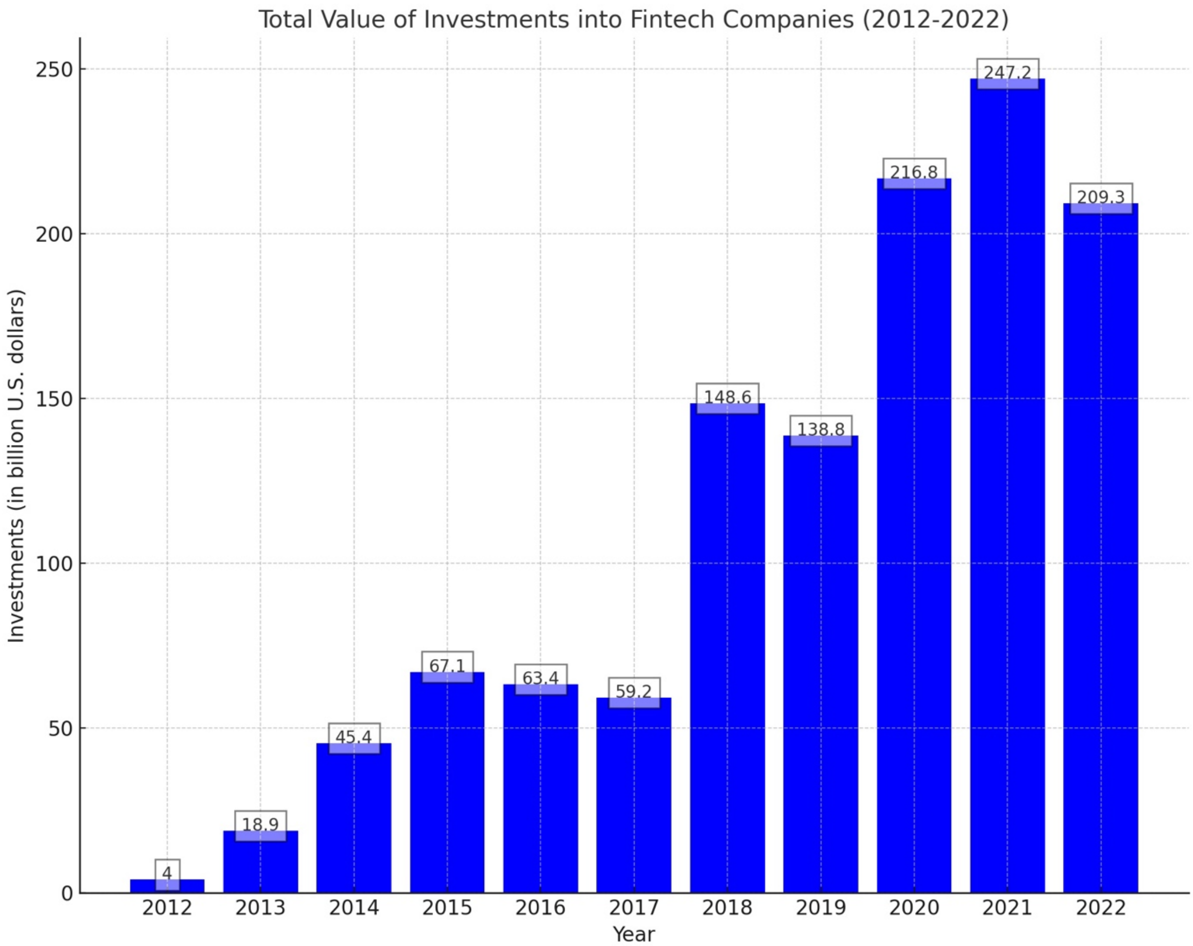

Figure 1. Investments into FinTech companies globally 2010-2022

Source: (*Global Investments in Fintech Companies 2010-2023*, n.d.)

The graph above indicates a robust growth pattern in the investments in FinTech companies over a decade, from 2012 to 2022. Initially, the investment values were quite low, but there is a noticeable growth trend with investments rising significantly over the years. The peak of investments was observed in 2021, reaching an apex at 247.2 billion U.S. dollars, before experiencing a slight decline in 2022.

This decline suggests a market correction, a saturation in investment opportunities, or a response to broader economic factors. The overall trend suggests that the FinTech sector has become increasingly attractive to investors, likely due to technological advancements, increased adoption of digital financial services, and a favorable regulatory environment. The data may also reflect the industry's resilience and potential for rapid growth, even when considering the minor pullback in 2022. Such a trend could be indicative of the sector's potential for future growth, the effectiveness of investment strategies in FinTech, or could be used as a base to predict future trends in the industry.

Islamic finance, which adheres to Shariah law, presents unique challenges and opportunities for FinTech. The integration of FinTech in Islamic finance is crucial for its adaptation to the modern economic landscape and for maintaining competitiveness in the global financial environment (Hazik & Hassnian, 2019). The adoption of FinTech allows Islamic finance to evolve with changing economic transactions and carve its niche in the future digital economy.

FinTech plays a transformative role in Islamic finance by bridging a historical gap in the sector and enabling it to adapt to modern economic realities. The integration of FinTech in Islamic finance is not just a trend but a necessity for the sector to remain relevant and competitive in the rapidly evolving global financial landscape. By embracing FinTech, Islamic financial institutions can leverage technological advancements to enhance compliance, efficiency, and accessibility, thereby shaping a new era in Islamic financial services (Hazik & Hassnian, 2019).

Several key technological advancements have contributed to the rise of FinTech, they are following:

1. *Digitalization:* The shift from analog to digital technologies enabled a more globalized and interconnected financial system.
2. *Internet and Mobile Technologies:* The widespread adoption of the internet and mobile technologies has been crucial in the development of FinTech, allowing for more accessible and efficient financial services.
3. *Blockchain and Cryptocurrencies:* The advent of blockchain technology and cryptocurrencies has introduced new ways of conducting financial transactions, emphasizing security and decentralization.
4. *Artificial Intelligence and Machine Learning:* These technologies have enabled more sophisticated data analysis, risk assessment, and personalized financial services.
5. *The transition from traditional to digital in the financial sector has been marked by:*
    a) *Increased Accessibility:* Digital platforms have made financial services more accessible to a broader audience.
    b) *Efficiency and Cost Reduction:* Digital solutions have reduced the costs associated with financial transactions and improved the efficiency of financial services.

c) *Innovation in Products and Services:* The digital era has seen the introduction of innovative financial products and services, tailored to meet the evolving needs of consumers.

The integration of FinTech in Islamic finance represents a significant shift towards modernizing and enhancing the efficiency of Islamic financial institutions (IFIs). This adaptation is driven by the need to maintain Shariah compliance while improving processes and cost-effectiveness.

2.1.1 The digital transformation of the Islamic finance

Islamic financial institutions are increasingly adopting FinTech solutions to stay competitive and meet the evolving needs of their customers. This involves deploying new technology-based business models that align with Islamic principles and values. The main focus areas include:

1. **Regulatory Environment:** The principal challenge in adopting Islamic FinTech is the evolving regulatory environment. For instance, the rapidly changing nature of the Initial Coin Offering (ICO) market requires constant adaptation.
2. **Technological Advancements:** Islamic FinTech utilizes technologies like blockchain to ensure transparency and compliance with Shariah law. This includes Islamic crowdfunding platforms and mobile banking solutions that provide greater access to financial services.
3. **Financial Inclusion:** FinTech in Islamic finance aims to promote financial inclusion, poverty alleviation, and social justice. This is particularly relevant in regions with low traditional banking penetration but high mobile phone usage (Hazik & Hassnian, 2019).

Islamic crowdfunding has emerged as a significant segment of Islamic FinTech, with platforms like LaunchGood and Skola Fund enabling funding for social impact projects. These platforms demonstrate the potential of FinTech to facilitate financing that may not be possible through traditional banking (Hazik & Hassnian, 2019).

Hazik and Hassnian emphasized the importance of balancing new technology adoption with controlling operational risks. They highlight the need for regulatory support, financial backing, and strict adherence to Shariah compliance as key factors in the successful integration of FinTech in Islamic finance. The authors suggest that Islamic FinTech platforms face challenges in obtaining financing compared to conventional FinTech platforms, underscoring the need for more supportive ecosystems (Hazik & Hassnian, 2019).

2.1.2 Blockchain Technology and Islamic Finance

Blockchain technology is a peer-to-peer (P2P) public ledger managed by a distributed network of computers, with no central authority or third-party middlemen (Hazik & Hassnian, 2019). It comprises of three important components: a transaction, a transaction record, and a mechanism for verifying and storing the transaction (figure 2) . A blockchain's blocks chronologically hold information about all transactions that have occurred in the chain (Hazik & Hassnian, 2019). This technology, foundational to cryptocurrencies like Bitcoin, offers an inherent level of trust by eliminating the need for a middleman and mitigating the risk of human error. Its publicly accessible log of transactions ensures data protection against tampering and revision, making it virtually impossible for individuals to modify or replace parts of the blockchain secretly (Hazik & Hassnian, 2019).

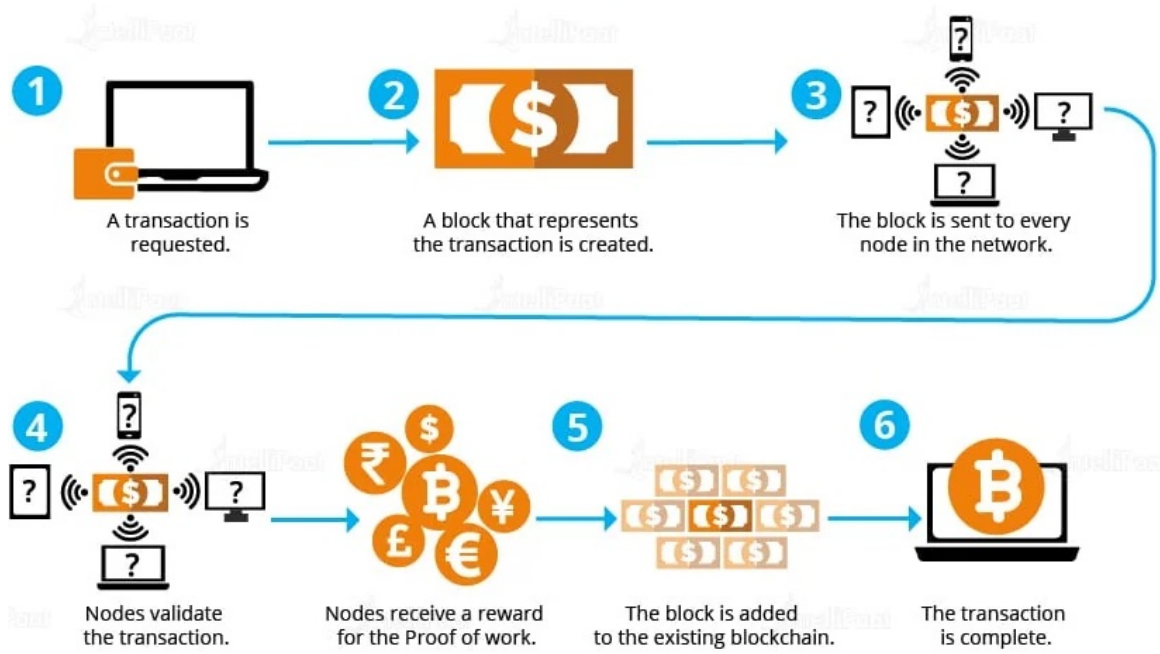

Figure 2. Blockchain Transaction Life-cycle
Source: (Steavus, 2021)

Blockchain's potential in Islamic finance lies in its ability to enhance transparency and compliance with Shariah law. The technology's decentralized nature aligns well with the principles of Islamic finance, which emphasize ethical and equitable financial practices. Blockchain can provide a transparent, immutable record of transactions, ensuring compliance and reducing the risk of fraud. This technology can also streamline processes, reduce costs, and increase the efficiency of Islamic financial transactions (Hazik & Hassnian, 2019).

Hazik Mohamed and Hassnian Ali discuss several applications of blockchain in Islamic finance:

1. **Islamic Crowdfunding Platforms:** Blockchain technology can be used to create transparent and efficient platforms for Islamic crowdfunding, ensuring that funds are used in compliance with Shariah principles (Hazik & Hassnian, 2019).
2. **Smart Contracts in Islamic Financial Transactions:** The use of smart contracts on blockchain platforms can automate the execution of contracts in Islamic finance, reducing the need for intermediaries and ensuring adherence to agreed terms (Hazik & Hassnian, 2019).
3. **Asset Tokenization:** Blockchain enables the tokenization of assets, which can be particularly beneficial in Islamic finance for creating asset-backed financial products that comply with Shariah law (Hazik & Hassnian, 2019).

2.2 An in-depth analysis of the current state of the FinTech and Islamic finance markets

The integration of FinTech into Islamic finance represents a significant and necessary evolution, bridging traditional Islamic financial principles with modern technological advancements.

The following case studies demonstrate the diverse applications and significant impact of FinTech in Islamic finance:

1. **Islamic Crowdfunding Platforms:** Platforms like LaunchGood and Skola Fund have revolutionized Islamic finance by facilitating funding for social impact projects. These platforms exemplify how FinTech can bridge the gap in financing for sectors often overlooked by conventional financial institutions, aligning with the ethical and social justice principles of Islamic finance.

2. **Regulatory Frameworks in Islamic Countries**: The proactive steps taken by countries like Malaysia and the UAE in issuing regulatory frameworks for FinTech illustrate the importance of a supportive environment for the growth of Islamic FinTech. These frameworks enable collaboration

between banks, institutions, and startups to develop innovative business models within controlled guidelines, ensuring Shariah compliance while fostering innovation.

3. **Islamic FinTech in Pakistan**: Initiatives like Karandaaz Pakistan highlight the country's commitment to fostering innovation in Islamic finance. This case study reflects the potential of FinTech in Islamic countries to improve processes and maintain Shariah compliance, particularly in emerging markets.

They highlight how FinTech can address unique challenges in Islamic finance, such as ensuring Shariah compliance and reaching underserved segments of the population. The examples of Islamic crowdfunding platforms show how FinTech can facilitate socially responsible investments, a core principle of Islamic finance. The regulatory frameworks in Islamic countries illustrate the importance of a supportive environment for the growth of Islamic FinTech. Pakistan's example underscores the role of FinTech in enhancing the efficiency and reach of Islamic financial services, particularly in emerging markets.

These practical applications reveal that FinTech is not just a technological upgrade but a means to fulfill the ethical and social objectives of Islamic finance. By leveraging FinTech, Islamic financial institutions can expand their services, adhere to Shariah principles more effectively, and contribute to financial inclusion and social welfare.

This synergy offers Islamic financial institutions the opportunity to enhance compliance, efficiency, and accessibility, while also addressing unique challenges such as regulatory adaptation and adherence to Shariah law. As FinTech continues to evolve, its role in Islamic finance is not just transformative but essential, ensuring the sector's relevance and competitiveness in the global financial landscape.

The financial landscape is witnessing a transformative era where technology intersects with the principles of Islamic finance, heralding the rise of Islamic FinTech—a sector that is rapidly reshaping the contours of global financial services. As we stand at the cusp of this revolution, it is imperative to delve into the current state of the FinTech and Islamic finance market to understand its trajectory and potential.

In recent years, the Islamic FinTech sector has demonstrated robust growth, with transaction volumes within the Organisation of Islamic Cooperation (OIC) countries reaching a significant $79 billion in 2021. This figure 3 represents a nascent yet rapidly expanding segment, accounting for 0.8 percent of global FinTech transactions. The dynamism of this sector is further underscored by its projected compound annual growth rate (CAGR) of 17.9 percent, outpacing the overall global FinTech industry's expected CAGR of 13.5 percent through 2026 (Salaam Gateway, 2022).

This burgeoning market is not uniformly distributed; rather, it is led by key players such as Saudi Arabia, Iran, the United Arab Emirates, Malaysia, and Indonesia, each commanding substantial transaction volumes. The landscape is also characterized by its inclusivity, with eleven countries boasting Islamic FinTech markets exceeding $1 billion—a number that is only expected to grow (Salaam Gateway, 2022).

The Global Islamic FinTech (GIFT) Index 2022 provides a nuanced understanding of the ecosystems that foster Islamic FinTech, with Malaysia, Saudi Arabia, Indonesia, the United Arab Emirates, and the United Kingdom emerging as the top five. This index, a composite of 19 key indicators across five categories, serves as a critical tool for assessing the health and conduciveness of Islamic FinTech markets (Salaam Gateway, 2022).

The industry's growth is not without its challenges. Insights from a global survey of Islamic FinTechs reveal that customer education, access to capital, regulatory frameworks, talent acquisition, and customer acquisition costs are significant hurdles. Yet, the industry remains optimistic, identifying payments, deposits, lending, and fundraising as high-growth segments for the coming year (Salaam Gateway, 2022).

The narrative of Islamic FinTech is one of opportunity and innovation, particularly in the wake of the pandemic, which has underscored the sector's ability to serve historically underserved populations. This chapter aims to dissect these developments, offering a comprehensive analysis of the current state of the FinTech and Islamic finance market, its growth prospects, and the strategic opportunities it presents for investors and stakeholders alike, as informed by the Global Islamic FinTech Report (2022).

The international market for Islamic FinTech is currently valued at a transaction volume of $79 billion as of 2021, with projections indicating an average annual growth rate of 18%, which is expected to surge to $179 billion by the year 2026 (figure 3).

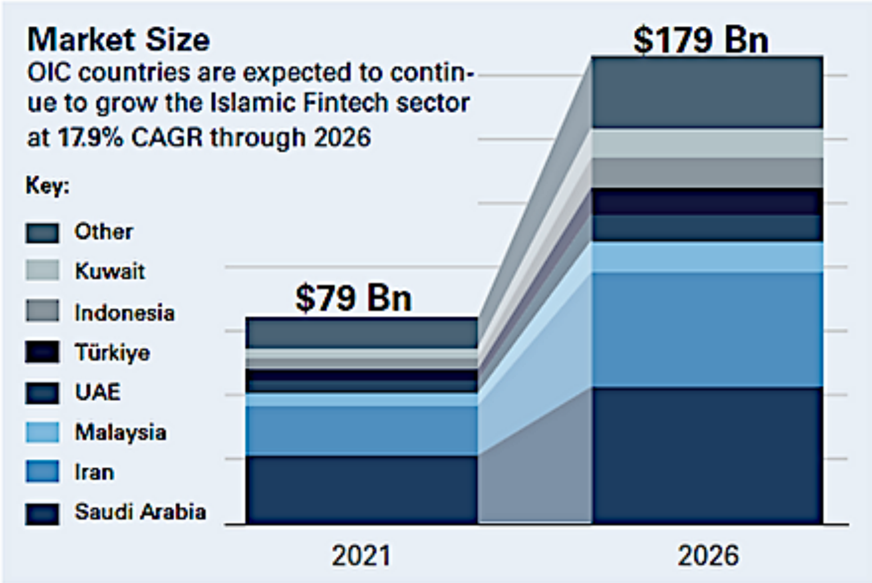

Figure 3. Market size of Islamic FinTech

Source: (Salaam Gateway, 2022)

Focusing on the Organisation of Islamic Cooperation (OIC) member states, the six leading markets in Islamic FinTech transactions are identified as Saudi Arabia, Iran, Malaysia, the UAE, Turkey, and Indonesia (figure 3). Together, these six nations constitute 81% of the Islamic FinTech market size within the OIC, revealing the formation of two predominant regional hubs for Islamic FinTech within the member countries

2.2.1 The Global Islamic FinTech (GIFT) Index

The Global Islamic FinTech (GIFT) Index is a tool designed to measure how conducive different countries (figure 4) are to the growth of the Islamic FinTech Market & Ecosystem within their jurisdictions, with the latest rankings placing Malaysia at the pinnacle, closely followed by Saudi Arabia, indicating their dominance in this sector. Not far behind, Indonesia, the UAE, and the UK complete the top five, showcasing a diverse mix of geographies leading the way in Islamic financial technology (Salaam Gateway, 2022).

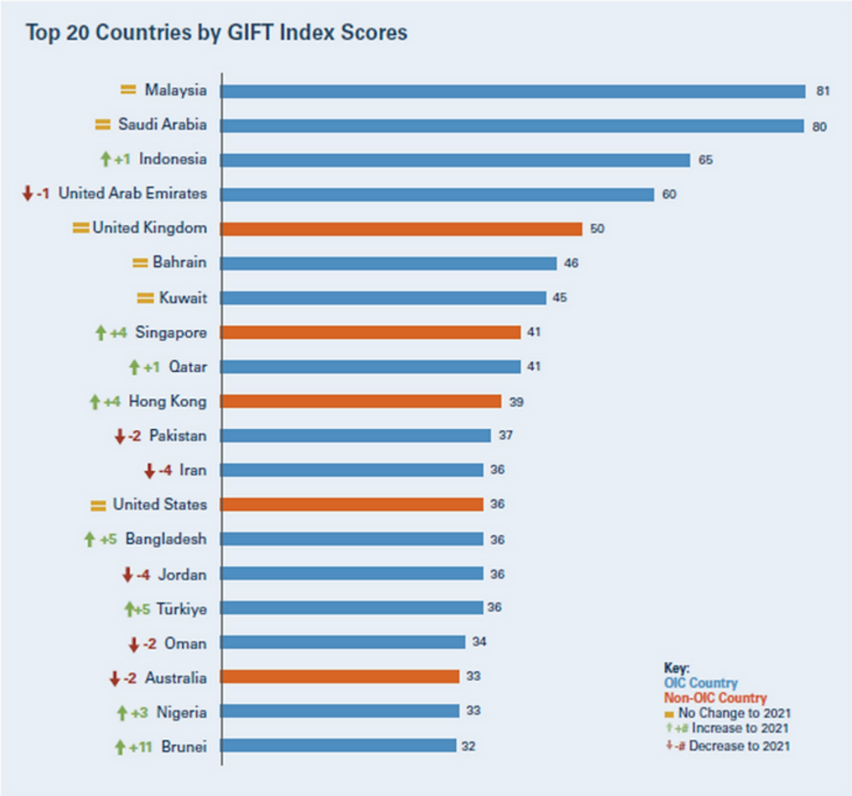

Figure 4. GIFT Index Score

Source: (Salaam Gateway, 2022)

This GIFT is grounded in a methodology that encompasses 19 indicators spread across five critical dimensions: Talent, Regulation, Infrastructure, Islamic FinTech Market & Ecosystem, and Capital. The Islamic FinTech Market & Ecosystem are weighted more heavily, signifying its pivotal role in mirroring a country's environment for Islamic FinTech. In this index, a distinct color differentiation marks OIC (Organization of Islamic Cooperation) countries apart from non-OIC ones, providing an additional layer of analysis. The index also includes year-on-year performance indicators, with symbols denoting increases, decreases, or stability in a country's score compared to the previous year. This data not only benchmarks current standings but also traces the dynamism within the Islamic FinTech landscape, offering a comprehensive perspective for stakeholders invested in the growth and potential of this financial sector (Salaam Gateway, 2022).

You can notice on Figure 5. Evident showings of OIC regions as well as Non-OIC areas also have favorable marketplaces (Salaam Gateway, 2022).

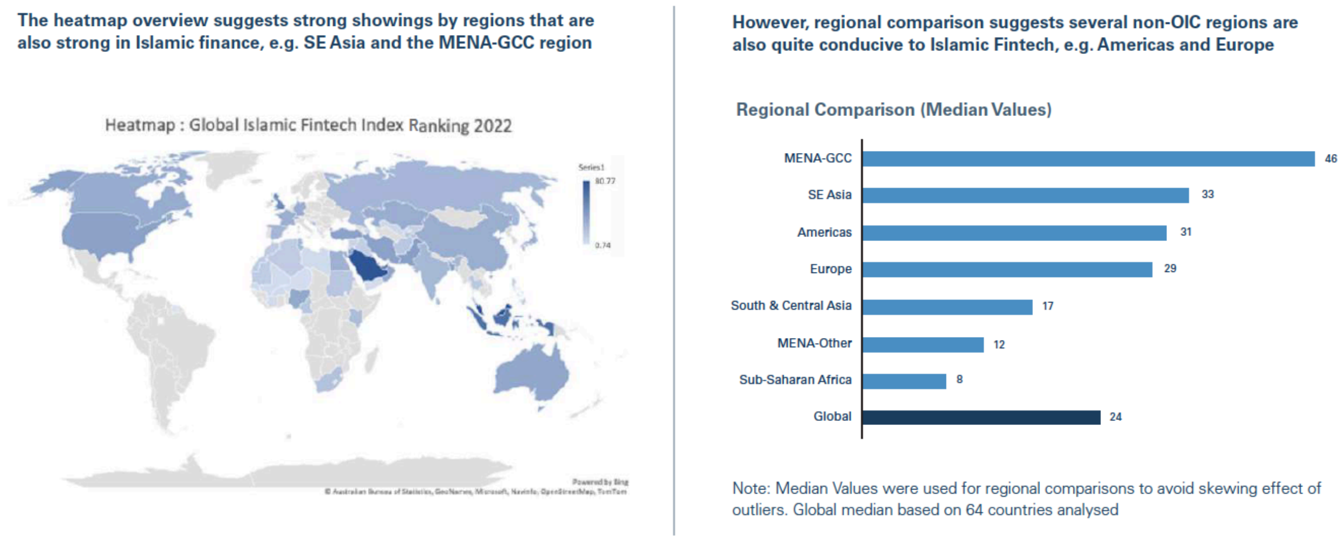

Figure 5. Global Islamic FinTech Index Heatmap and Regional Comparison

Source: Salaam Gateway, 2022

In the analysis of the global Islamic FinTech landscape, recent data indicates a robust presence of the Organisation of Islamic Cooperation (OIC) regions in the domain of Islamic finance. This is particularly evident within Southeast Asia and the Middle East & North Africa - Gulf Cooperation Council (MENA-GCC) areas. Additionally, the investigative findings extend beyond the OIC territories, revealing a favorable environment for Islamic financial technology in non-OIC regions, notably within the Americas and Europe. This alignment towards Islamic FinTech is quantitatively depicted through the Global Islamic FinTech Index Ranking of 2022, which leverages a heatmap to represent the data visually, and through a bar graph that contrasts the median values regionally. Such graphical representations underscore the widespread and growing acceptance of Islamic finance principles across diverse global markets.

2.2.2 Hubs Analysis

The paragraph 2.2 keeps tracking the growth of Islamic FinTech by updating its rankings. It also looks closely at some key places where Islamic FinTech is booming or could take off, using a survey of people involved in the local scene. This section breaks down the survey results for each place.

The radar chart in Figure 6 visualizes the performance of a 'hub' across various business and regulatory dimensions. Each axis on the chart represents a different aspect of the business, namely Market Share, Regulation, Shariah Compliance, Access to Financial Markets, Proximity to Customers, Talent, Capital, and Business Performance.

The chart is marked with scores from 1 to 5 to indicate the hub's performance relative to others. A score of 5 on any axis indicates that the hub is considerably better than others in that dimension, highlighting it as a unique selling proposition (USP). A score of 4 suggests the hub is somewhat better than others, while a score of 3 indicates a performance that is comparable to other hubs. Conversely, a score of 2 suggests that the hub is somewhat worse, and a score of 1 indicates it is considerably worse, signifying a recognized weak point in that particular area.

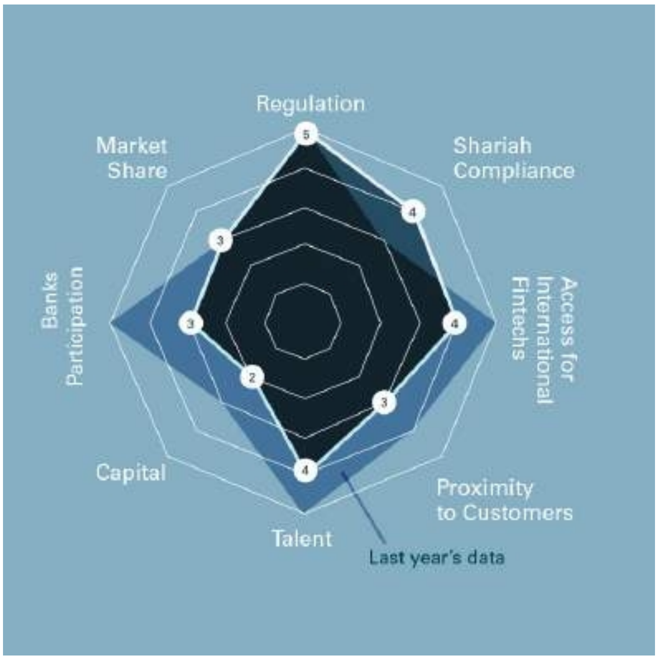

Figure 6. Islamic FinTech Hub Ecosystem Self-Assessment Radar Chart

Source: Salaam Gateway, 2022

The chart provides a quick visual comparison of how a particular hub rates itself against these critical factors in comparison to other hubs, using data from the previous year as a benchmark.

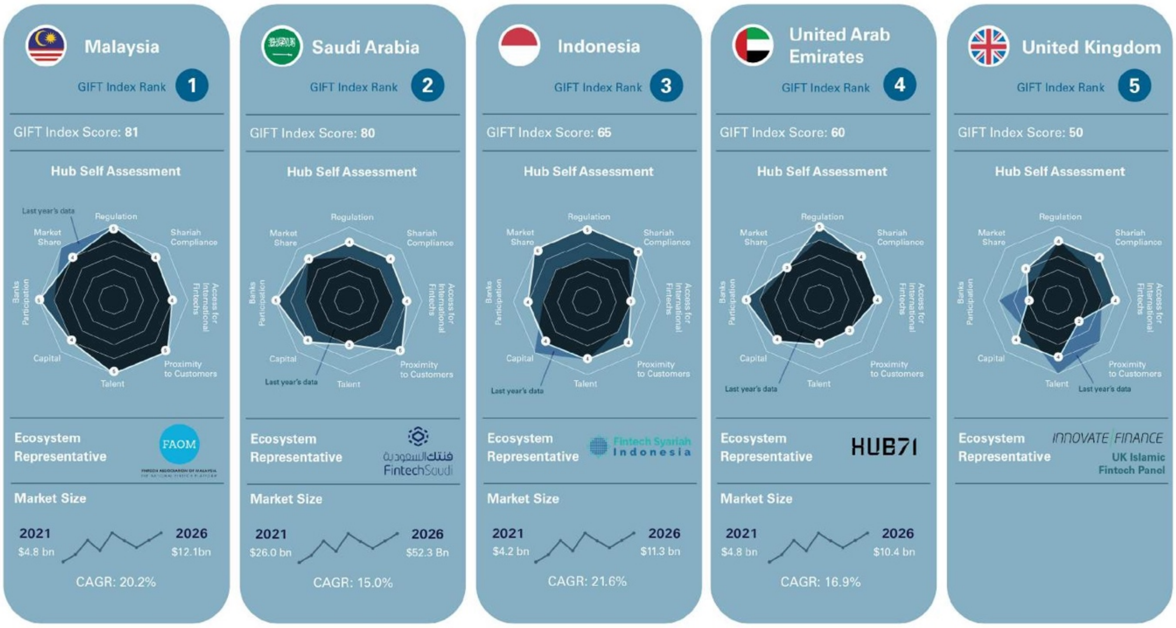

Figure 7. Projected Growth Analysis of Emerging Islamic FinTech Hubs (Dominant Hubs)
Source: (Salaam Gateway, 2022)

Figure 7 represents a comparative analysis of the top five Islamic FinTech hubs. Each hub is evaluated based on the Global Islamic FinTech (GIFT) Index Score and a self-assessment across several key ecosystem development pillars such as Regulation, Shariah Compliance, Market Share, etc. The radar charts visualize the self-assessment scores on these pillars for each hub. Additionally, the image includes the current market size and the projected market size by 2026, along with the compound annual growth rate (CAGR) for each hub. Malaysia ranks first in the GIFT Index, followed by Saudi Arabia, Indonesia, United Arab Emirates, and the United Kingdom, indicating their strong positions in the global Islamic FinTech landscape.

Figure 8. Projected Growth Analysis of Emerging Islamic FinTech Hubs (Emerging Hubs)

Source: Salaam Gateway, 2022

Figure 8 provides an overview of Islamic FinTech hubs that are considered to be on the rise in the Global Islamic FinTech Report. The graphic includes individual cards for Bahrain, Qatar, Pakistan, and Türkiye, each detailing their GIFT Index Rank and Score, a hub self-assessment radar chart reflecting performance across various ecosystem development pillars, and market size data with projections to 2026, including compound annual growth rates (CAGRs). The CAGR figures suggest a positive growth outlook for these markets in the Islamic FinTech sector, with each hub expecting significant expansion by 2026 (Salaam Gateway, 2022).

2.2.3 The iFinTech Hubs Maturity Matrix

Matrix identifies Malaysia, the UAE, and Indonesia as leading hubs, with Saudi Arabia progressing from an emerging status to join the ranks of leaders. Meanwhile, Bahrain, Bangladesh, Egypt, Iran, Jordan, Kuwait, Nigeria, Oman, Pakistan, Qatar, and Türkiye are evolving, exhibiting less optimal conditions for Islamic FinTech yet demonstrating considerable growth in market size within their respective domestic spheres (Salaam Gateway, 2022).

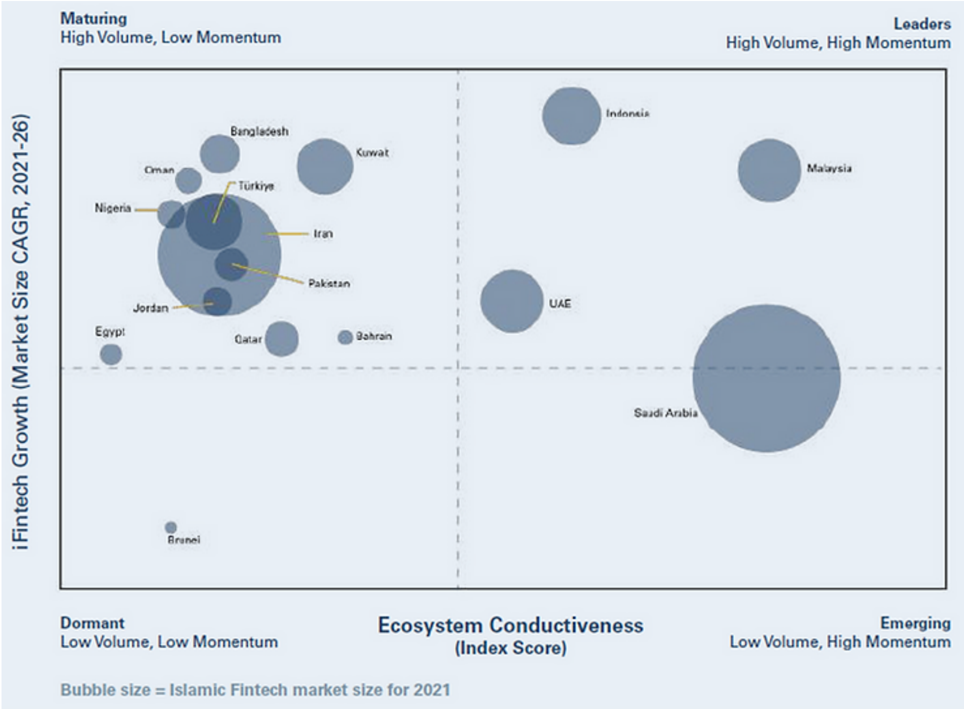

Figure 9. Islamic FinTech Market Growth and Ecosystem Conductiveness

Source: Salaam Gateway, 2022

In the landscape of Islamic financial technology (FinTech), the "iFinTech Hubs Maturity Matrix" from the Global Islamic FinTech Report 2022 presents a strategic categorization of countries based on the development and dynamism of their respective markets. Malaysia, the United Arab Emirates (UAE), and Indonesia emerge as preeminent leaders within this domain. These nations not only boast substantial market sizes but also demonstrate vigorous growth trajectories, indicative of their robust ecosystems and favorable regulatory environments that are conducive to Islamic FinTech innovation. Significantly, Saudi Arabia is observed to be transitioning from an 'emerging' to a 'leader' status, reflecting its accelerated market growth and improved infrastructural framework. In contrast, a cohort of countries including Bahrain, Bangladesh, Egypt, Iran, Jordan, Kuwait, Nigeria, Oman, Pakistan, Qatar, and Türkiye are categorized as evolving. Despite facing less optimal conditions for Islamic FinTech operations, these countries show significant domestic market growth, underscoring the potential for future maturation and integration within the global Islamic FinTech landscape (Salaam Gateway, 2022).

2.2.4 Gaps and Opportunities for growth in FinTech by Region

There are enduring opportunities for growth in numerous FinTech sectors within South & Central Asia, North America, the broader MENA region beyond the established centers, and Sub-Saharan Africa. Furthermore, the verticals of Capital Markets, Insurance, and Social Finance present considerable global prospects for development (Salaam Gateway, 2022).

Region	MENA-GCC	SE Asia	Europe	South & Central Asia	North America	Sub-Saharan Africa	MENA-OTHER
Alternative Finance	16	11	12	3		1	1
Capital Markets	4		1				
Digital Assets	12	3	8	1	1		
Payments	30	9	3	8			3
Raising Funds	9	36	12	4	3	2	3
Deposits and Lending	13	15	14	4	3	5	2
Wealth Management	14	11	9	3	10	2	1
Insurance	1	6		1	1		
Social Finance	1	6	4	2	2	1	1
Total	100	97	63	26	23	11	11

Low — High

Figure 10. Gaps and Opportunities by Region

Source: (Salaam Gateway, 2022)

Figure 10 provides a clear and detailed heat map that points out the current state and potential for growth in the financial technology sector across different global regions. It breaks down the FinTech landscape into specific areas, including but not limited to, Alternative Finance, Digital Assets, and Wealth Management. These areas are then assessed across a variety of regions: the Middle East and North Africa (MENA) with a focus on the Gulf Cooperation Council (GCC), Southeast Asia, Europe, South and Central Asia, North America, Sub-Saharan Africa, and other parts of the MENA region. The data is presented in a color-coded table format, with darker shades indicating regions with greater opportunity or larger gaps in the market. According to this report, regions like South & Central Asia, North America, and the broader MENA region, as well as Sub-Saharan Africa, show untapped potential in several FinTech sectors. Moreover, the report suggests that sectors such as Capital Markets, Insurance, and Social Finance are ripe for development on a global scale (Salaam Gateway, 2022).

2.3 Current State of Islamic Finance in Austria

Austria stands out in Europe for its commitment to fostering a harmonious environment among different religious groups. At a time when certain nations appear to be creating divisions within religious communities, Austria has embraced a path of tolerance and inclusivity, particularly towards its Muslim population. Austria is distinguished in Europe by being the first nation to formally acknowledge its Muslim inhabitants. Furthermore, it actively involves associations and organizations to facilitate the lives of Muslims, including offering Islamic education in public schools by teachers whose salaries are paid by the state.

However, despite these positive aspects, when it comes to Islamic finance, Austria does not yet offer a robust system similar to that found in Britain, which boasts multiple Sharia-compliant banks and educational institutions with courses on Islamic finance. In Austria, the progress in this area seems to be primarily driven by the Muslim community rather than by state-led initiatives in financial, legal, or academic realms. Nonetheless, Austria is seeing a rise in ethical finance, such as socially responsible investment (SRI) funds, and various financial entities are introducing ethical financial products.

The chapter in question aims to provide a comprehensive view of the state of Islamic finance in Austria. It will begin by exploring the historical development of Islamic finance in the nation, along with a concise account of the Islamic community's history. The subsequent section will assess the present landscape of the Islamic finance sector.

The historical evolution of Islam in Austria is marked by significant milestones, beginning with the Austro-Hungarian Empire's control over Bosnia and Herzegovina in 1878, which introduced a substantial Muslim demographic to the region (Kogelmann, 1999). Notably, Austria was the first European nation to legally recognize Islam, a milestone achieved with the enactment of a law on 15 July 1912. This recognition was grounded in the 1874 law on the acknowledgment of religious communities, pre-dating the influx of foreign labor in the 1960s and 1970s. The annexation of Bosnia-Herzegovina by the Austro-Hungarian Empire in 1908, which had a substantial Muslim population, further solidified the Muslim presence in the region. For decades, thousands of Muslims have been part of the Austrian fabric (Heine et al., 2012) The 1912 law afforded Muslims several rights, including the public practice of Islam, equality with other recognized religious communities, administrative autonomy in internal matters, and the ability to establish religious organizations, such as schools and foundations (Hajjar, 2019). The post-World War II era saw the emergence of several Muslim associations in Austria, like the Association of Muslims in Austria and the Muslim Social Service, focusing primarily on religious and social charitable activities (Heine et al., 2012).

The Muslim population in Austria has exhibited a marked growth over the last five decades. An analysis of the demographic data from Statistik Austria reveals a progressive increase in the number of Muslims residing in the country. In 1971, the Muslim population was recorded at 22,300, which escalated to 76,900 by 1981. The upward trend continued over the years, reaching 158,800 in 1991 and 339,000 by the turn of the millennium in 2001. The most recent data from 2021 indicates that the Muslim population has more than doubled since 2001, standing at 745,600 (*Muslime in Österreich 2021*, n.d.). This demographic shift reflects broader socio-political and economic patterns within European migration trends, with implications for multicultural policies and integration strategies within Austria.

This Statistik Austria represents a significant increase from the last official count in 2001, reaching a new peak. During this period, the proportion of Muslims in the Austrian population rose from 0.3% to 8.3%. This growth is primarily attributed to immigration from Turkey, Muslim regions of the former Yugoslavia, and, in recent years, refugees from Arab and North African countries.

Table 3 shows the distribution of Muslims in Austria across the nine federal states in 2021 (*Österreich - Bevölkerungsanteil Muslime Bundesland*, n.d.).

Federal states	Share, %
Vienna	14.8%
Vorarlberg	12.2%
Tyrol	8.7%
Upper Austria	8.4%
Salzburg	6.5%
Carinthia	5.5%
Styria	5.1%
Lower Austria	4.9%
Burgenland	2.2%

Table 3. Distribution of Muslims in Austria according to Federal States 2021
Source: (*Österreich - Bevölkerungsanteil Muslime Bundesland*, n.d.)

The statistics from Table 3, the distribution of the Muslim population across the Austrian federal states exhibits substantial variability. According to data released by Statistik Austria, the proportion of Muslims in Vienna (Wien) comprises the highest percentage at 14.8%. This is followed by Vorarlberg with 12.2%, and Tyrol (Tirol) at 8.7%. In contrast, Burgenland has the lowest percentage, with Muslims making up 2.2% of its population. The national average stands at 8.3%, indicating a heterogeneous distribution of the Muslim demographic across different regions (*Österreich - Bevölkerungsanteil Muslime Bundesland*, n.d.).

In examining the historical context of Islamic Finance and Muslims in Austria, it is essential to note that their significant presence and influence is a relatively recent phenomenon, primarily gaining momentum post the 2008 financial crisis. Initially, there was a scarcity of Sharia-compliant financial offerings in the German-speaking regions. However, Muslim religious organizations, notably more proactive than traditional financial bodies, initiated several projects, although not all sustained in the long run. A notable effort was the establishment of a *Sharia* Board by the Islamic Religious Community in Austria (IGGiÖ), which was responsible for issuing Islamic lawverdicts or fatwas (Hajjar, 2019).

A significant initiative emerged in 2008 under the leadership of Mouddar Khouja, assistant to the president of the IGGiÖ. Khouja, in collaboration with an expert from the conventional financial sector, founded "Baraka," a company based in Vienna, dedicated to distributing Islamic financial products developed by European institutions. Initially, Islamic funds were the primary focus, with associations serving as effective communication channels in a structured distribution system. The successful trial phase underscored the Austrian Muslim community's interest, leading to comprehensive training and certification programs for sales personnel to ensure credible transactions (Hajjar, 2019).

Baraka's target demographics were threefold: Austrian and European Muslims traditionally saving money informally or through property investments in their countries of origin, entrepreneurs seeking financial support or embarking on new ventures, and Islamic associations requiring funds for cultural center construction. Khouja's creation, the "Islamic Fund – Equity Optimiser," was a noteworthy venture, intended for distribution by BNP Paribas' Austrian subsidiary and underpinning life insurance financing at Helvetia Bank. Investment options included direct contributions or retirement savings, with the fund comprising stocks from Sanofi-Aventis, BP, BASF, and China Mobile, aligning with the Islamic Dow Jones and audited by a Sharia board. Though Khouja envisioned a prosperous future for this fund, appealing to Muslims and non-Muslims alike, it faced challenges. Khouja disclosed his departure from the company in June 2009, with the fund being managed solo by his partner until its closure in 2016 (Hajjar, 2019).

2.3.1 The Financial Market in Austria

The capital market has seen considerable growth within Austrian corporate finance, with banks playing a key role in connecting those who need capital with those who supply it. Banks and insurance companies are some of the biggest investors, employers, and tax contributors in Austria. They have long been involved in the financial markets of Central, Eastern, and Southeastern Europe, making Austria's financial sector an important link between emerging markets in Eastern Europe and established ones in other areas (Hajjar, 2019). Austria's financial framework is significantly shaped by its universal banking system. This model presents substantial opportunities for synergy and risk diversification, along with the flexibility to adapt to the dynamic financial landscape. Credit institutions within this system are equipped to provide a comprehensive suite of financial and credit services (Hajjar, 2019).

In Austria, financial institutions are primarily categorized into five distinct groups, defined by their legal structure and their target customer base:

i. Commercial banks, known as (*Aktienbanken)*, operate in the traditional banking sector.

ii. Savings banks, or *(Sparkassen*), focus on personal savings and investments.

iii. Credit unions, referred to as (*Volksbanken),* are cooperative banks that serve their members.

iv. Mortgage banks, named (*Landes Hypothekenbanken),* specialize in real estate financing.

The leading Austrian credit institutions include major entities such as *Erste Group Bank AG, UniCredit Bank Austria AG, and Raiffeisen Zentralbank Österreich AG,* among others (Hajjar, 2019).

2.3.2 The feasibility of Islamic Finance development in Austria

In the Austrian banking landscape, known for its robustness, a notable reluctance towards Sharia-compliant financial instruments has been observed. This reluctance has resulted in limited progress in this area, with offerings remaining sparse or absent. However, a significant development occurred in 2016 when BAWAG PSK, a major Austrian retail bank, launched a Sharia-compliant current account. This was a response to the growing Muslim population in Austria, amidst the European migrant crisis. Claudia Lemlihi, BAWAG PSK's marketing manager, announced this initiative, introducing the "Amana" account, which was specifically designed to meet the needs of Muslim customers in Austria. Unlike traditional banking accounts, this account operates without interest, in adherence to Islamic principles, and instead charges fixed monthly fees ranging from €4.90 to €34.90.

Despite its innovative approach, this initiative faced considerable backlash on social media, with many users expressing strong opposition. Some critics saw this as a step towards the Islamization of Europe, and there were threats of account closures and comparisons to the bank's previous scandals. BAWAG PSK addressed the controversy by emphasizing that the accounts were not free but charged fixed fees like conventional accounts, were not funded by conventional accounts, and were open to all interested parties, Muslim or not. A spokesperson from BAWAG PSK clarified that the bank was testing a new interest-free current account model and not engaging in Islamic banking per se. The bank aimed to cater to the diverse needs of Austrian society, including the nearly 760,000 Muslims residing in Austria. Furthermore, the bank reiterated its compliance with Austrian banking law and its commitment to serving all consumers in Austria (Hajjar, 2019).

Erste Group Bank AG stands as a notable example in the realm of ethical investment. Its subsidiaries, "Erste Sparinvest" and "Erste Asset Management", have been responsive to investors' growing interest in environmentally, socially, and ethically oriented investment opportunities. Over the past decade, "Erste Sparinvest" has developed a diverse range of ethical funds, leading the Austrian market. In 2011, a significant decision was made to exclude companies involved in the production of weapons, including nuclear arms and cluster munitions, from their investment portfolios. Since 2012, all asset management divisions of the Erste Group have aligned with the United Nations Principles of Responsible Investment (PRI). Furthermore, by endorsing the Bangladesh Protocol in 2013, Erste Asset Management pledged not to invest in regions with human rights violations in the textile industry. The group also applies a policy against food speculation across all its funds (Hajjar, 2019).

UniCredit Bank Austria, a subsidiary of the Italian UniCredit Bank, also offers ethical products and promotes sustainable development. It provides a "NGO-Bonus" product and offers basic bank accounts with more favorable terms for economically or socially vulnerable clients. The bank adheres to the ISO 14001 environmental management standard and utilizes 100% ecological electricity. At the parent company level, an ethics report, 'Nachhaltigkeitsbericht', is published to outline these commitments.
Raiffeisen Zentralbank Österreich (RZB) and Raiffeisen Bank International (RBI), as the central institutions of the Austrian Raiffeisen banking group, have shown a strong interest in ethical management. The Raiffeisen Capital Management Group is a leading provider of ethical investment products in Austria. Through initiatives like the Climate Protection Initiative, the group has increased its focus on climate change issues and regularly publishes annual ethics reports (Hajjar, 2019).

Raiffeisenlandesbank Oberösterreich, since 2013, has implemented an ethical management approach. It specializes in financing renewable energy projects and owns Kepler-Fonds KAG, which offers a variety of ethical investment options. The bank also engages in social initiatives in arts, health, and wellness.

Similarly, Raiffeisenlandesbank Niederösterreich-Wien focuses on ethical, ecological, and social funding, with investments in areas like schools, kindergartens, water supply, health facilities, and SMEs that create employment. Its annual report includes a comprehensive section on social responsibility.
Oberbank, another significant player, prioritizes social and environmental aspects. It offers socially responsible investment (SRI) funds and implements CSR programs for its staff, including continuous training and health promotion initiatives.

In summary, Austria's journey in Islamic finance is marked by a cautious and evolving approach, with notable advancements and challenges. The country, recognized for its inclusivity towards its Muslim population, has shown significant progress in religious and educational integration. However, the development of Islamic finance in Austria, highlighted by BAWAG PSK's Sharia-compliant account in 2016, remains in its infancy compared to nations like Britain with more established Islamic financial sectors.

Significantly, the Austrian financial landscape is characterized by a strong commitment to ethical investment, with leading institutions like Erste Group Bank AG and UniCredit Bank Austria pioneering responsible investment practices. This alignment with the ethical tenets of Islamic finance indicates potential for further integration of Sharia-compliant practices within the Austrian financial system.

The path towards a comprehensive Islamic financial system in Austria appears to be gradual, driven more by community initiatives than state-led efforts. The cautious integration of Islamic financial instruments, limited in scope compared to other countries, reflects Austria's careful balancing of its legal and cultural norms with the financial needs of its Muslim community.

Looking ahead, Austria's engagement with Islamic finance offers significant growth and innovation opportunities. The country's approach to integrating these practices within its established financial system will provide valuable insights into financial diversity and inclusivity in the European context. Austria's experience serves as an important case study in the global narrative of embracing Islamic finance.

2.3.3 The Analysis of FinTech in Austria

The FinTech sector in Austria represents a significant and evolving component of the nation's financial landscape. This comprehensive analysis delves into the intricacies of FinTech development in Austria, examining the regulatory framework, the burgeoning collaborations between traditional financial institutions and FinTech startups, and the future prospects of FinTech innovations (FMA - Finanzmarktaufsicht. (2021)., n.d.).

The figure 11 Transaction Value[3] shows the forecasted value of transactions in the selected market for each year.

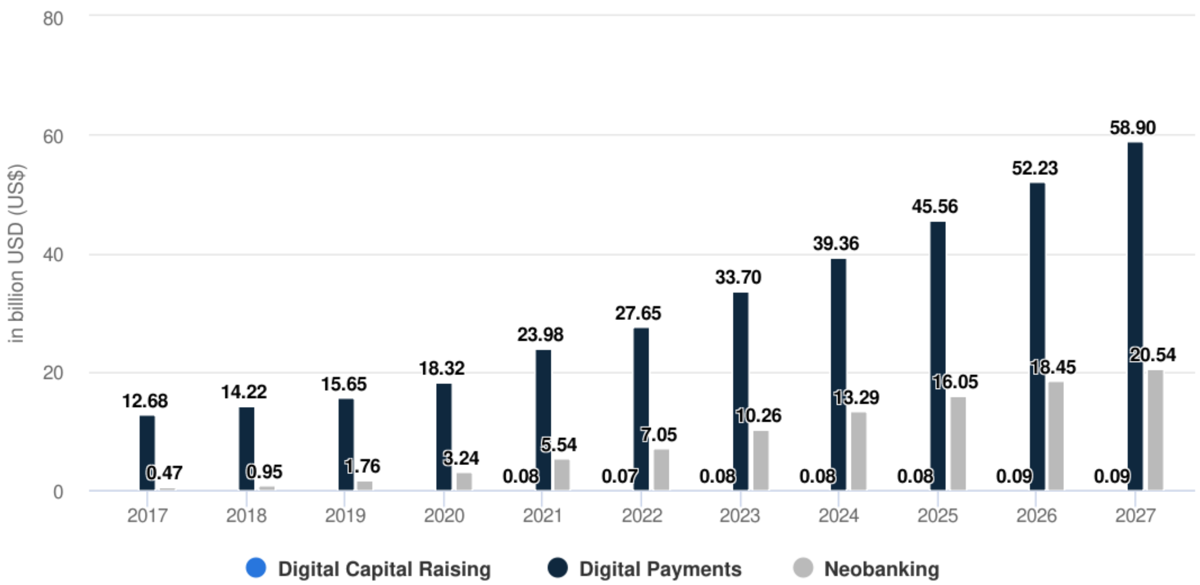

Figure 11. Transaction Value in Austria

Source: (FinTech - Austria., n.d.)

The bar chart presents a longitudinal data of the transaction values across three distinct segments within the Austrian FinTech industry, spanning from 2017 to 2027. It delineates the annual transaction values in billion U.S. dollars for Digital Capital Raising, Digital Payments, and Neobanking.

[3] It is the price actually paid or payable for the goods when they are sold for export to the customs territory of the Union, adjusted, if applicable(*Tax Agency: Value of the Merchandise - Transaction Value. Definition*, n.d.).

Digital Payments, denoted by black bars, dominate the chart, exhibiting a robust upward trajectory indicative of vigorous growth within the sector. The initial value of approximately 12.68 billion U.S. dollars in 2017 escalates consistently to reach a projected value close to 59 billion U.S. dollars by 2027.

Conversely, Neobanking segment, represented by blue bars, while also showing an increment in transaction value, does so at a more moderate pace. The figures ascend from a mere 0.47 billion U.S. dollars in 2017 to an anticipated 20.54 billion U.S. dollars by 2027.

The sector, the Digital Capital Raising depicted with light gray bars, maintains a relatively flat line with minor fluctuations, hovering around the 0.08 to 0.09 billion U.S. dollars mark throughout the observed and projected period

The chart not only reflects the existing financial landscape but also extrapolates future trends, anticipating substantial growth in digital transactions. It underscores the burgeoning dominance of digital payment solutions within the FinTech domain and suggests a steady yet slower rate of increase in capital raising activities. The Digital Capital Raising while steady, appears to play a minor role in the overall transaction value within the market.

The Austrian Financial Market Authority (FMA) has been instrumental in shaping the trajectory of the FinTech sector. Recognizing the transformative potential of financial technology, the FMA has undertaken substantial initiatives to cultivate a supportive environment for FinTech growth, while ensuring regulatory compliance and consumer protection. A landmark initiative by the FMA was the extensive analysis conducted in 2018, aimed at assessing the current state of FinTech in Austria. This study sought to understand the deployment of technologies, identify key trends, and predict future developments in the sector (FMA - Finanzmarktaufsicht. (2021)., n.d.). The FMA's proactive approach underscores the critical role of regulatory bodies in guiding the FinTech industry's growth and ensuring its alignment with national and international financial regulations.

Collaboration between established financial institutions and emerging FinTech companies has become a hallmark of Austria's FinTech landscape. This trend is a strategic response to the competitive pressures and opportunities presented by the FinTech revolution. A significant number of Austrian banks have engaged in partnerships with FinTech firms, with 53% reporting collaborations with at least one FinTech company (FMA - Finanzmarktaufsicht. (2021)., n.d.).These partnerships are indicative of a broader shift towards embracing innovation, enhancing service offerings, and redefining the traditional banking model. Such collaborations are not limited to banks; insurance companies and asset managers are also increasingly engaging with FinTech startups to leverage their technological expertise and innovative solutions.

If we look at Figure 12 which illustrates the average transaction value per user within the FinTech industry in Austria across three segments from 2017 to 2027, the average transaction value within the Alternative Financing segment post-2018 could signify a market reaching saturation, intensifying competition, or a pivot in consumer preference toward alternative FinTech offerings. Concurrently, the Digital Payments sector's variable pattern intimates a susceptibility to macroeconomic variables, progressive technological shifts, and the competitive landscape's ebb and flow. Nonetheless, the resurgence in transaction value in later years could be ascribed to the integration of innovative payment technologies, enhanced security protocols, and a broadening acceptance of digital payment methods.

The Neobanking segment's ascending trajectory implies an expansion in the user demographic or an escalation in per-user transaction frequency. This trend could be driven by an increase in the digitally literate consumer base, the expediency afforded by Neobanking services, or a diversification in the services Neobanks offer.

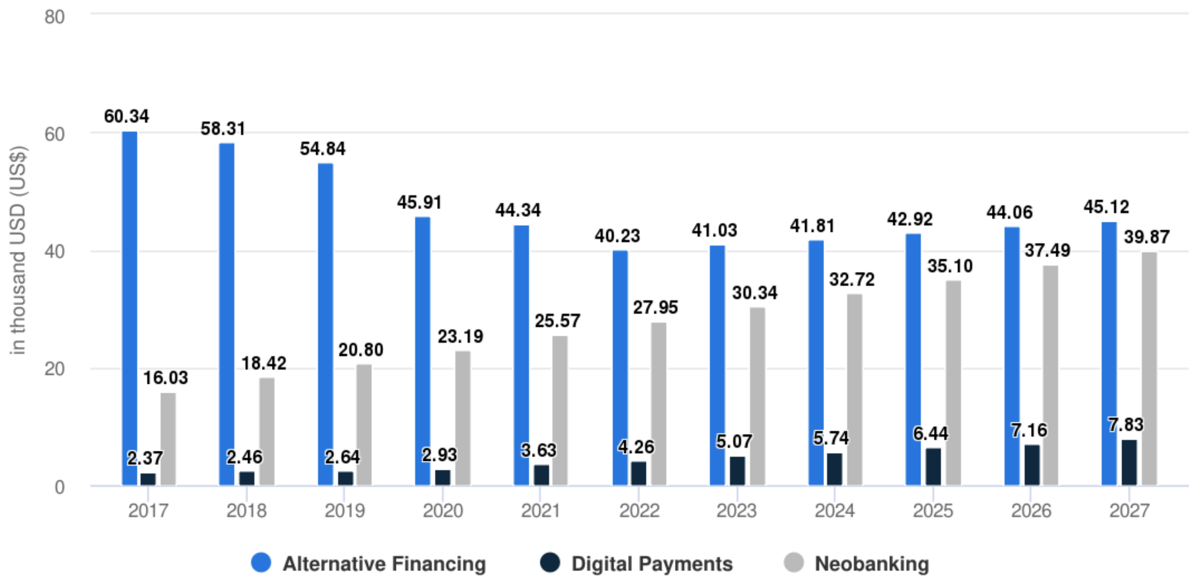

Figure 12. Transaction Value per user in Austria

Source: (FinTech - Austria., n.d.)

Looking to the future, the projection of continued ascension from 2022 suggests a bullish outlook on the FinTech industry's expansion, with Digital Payments and Neobanking poised for considerable growth. This presupposes a persistent trajectory of technological innovation, a strengthening of the regulatory environment, and a consumer migration from conventional banking paradigms to digital-first alternatives.

The consistent upward movement observed in Digital Payments and Neobanking towards the latter part of the forecast period may be indicative of an industry approaching maturity. This could reflect the solidification of consumer confidence, the establishment of digital financial services as a habitual preference, and the potential stabilization of market growth.

The future of FinTech in Austria is marked by continuous innovation and technological advancements. Banks and financial institutions are exploring a range of technologies, including artificial intelligence, blockchain, and advanced data analytics, to enhance their product offerings and operational efficiency. The cautious adoption of technologies like blockchain indicates a measured approach to embracing emerging technologies, balancing the potential benefits with the associated risks (Digitalisation in the Austrian Financial Market, 2021, p. 20).

Adaptation of FinTech has a strong base Figure 13 delineating FinTech users by segment in Austria suggests a FinTech ecosystem where Digital Payments dominate, likely due to their convenience and efficiency, resonating with a broad user demographic. This dominance is coupled with a steady climb in the user base for Digital Assets and Investments, hinting at a growing consumer inclination towards digitally managing assets, likely driven by the proliferation of accessible investment platforms. Concurrently, the surge in Neobanking users indicates a paradigm shift to more accessible and user-centric banking solutions, potentially challenging traditional banking institutions. The uniform growth across all FinTech sectors not only implies successful market penetration but also points towards an industry approaching maturity, characterized by service diversification and widespread consumer adoption. The forward-looking projections up to 2027 presuppose sustained innovation within the sector, fostering user growth as new technologies and services emerge. This expansion is presumably underpinned by a stable economic and regulatory environment conducive to the growth of FinTech services, while the growing user numbers reflect a broader trend of increased technological proficiency among consumers, who are progressively embracing digital financial services as part of their everyday financial management practices.

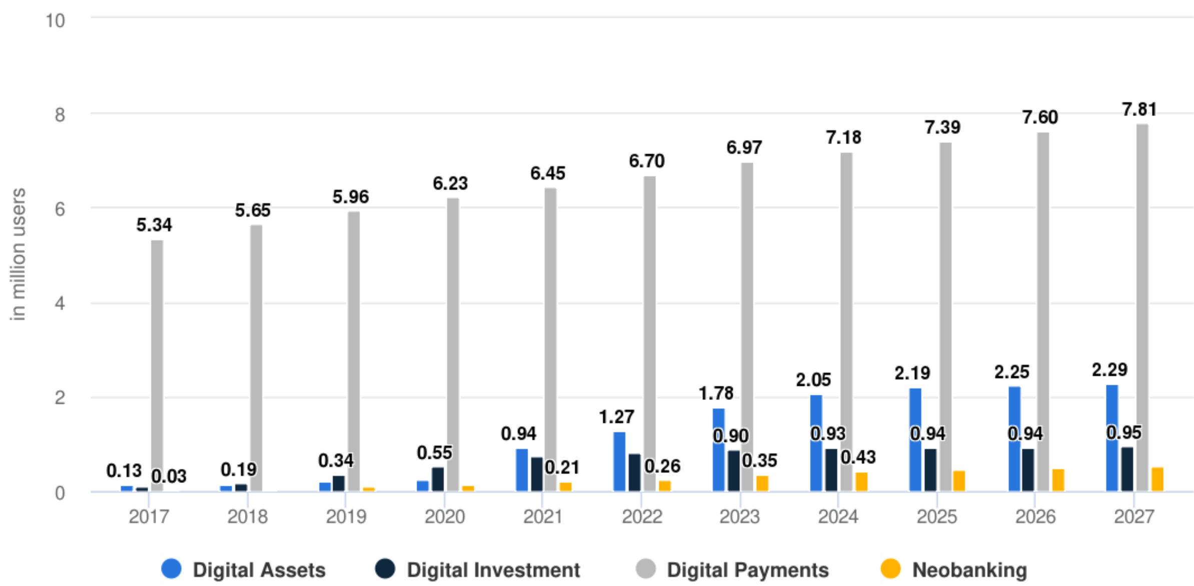

Figure 13. Users in Austria

Source: (FinTech - Austria., n.d.)

The digital transformation within the financial sector is viewed as an evolutionary process rather than a disruptive shift. This perspective allows financial entities to adapt their business models, develop new competencies, and integrate technological systems over a manageable timeframe. The gradual adaptation to digital technologies suggests a pragmatic approach to innovation, ensuring that changes are sustainable and aligned with the long-term objectives of the financial sector (FMA - Finanzmarktaufsicht. (2021)., n.d.).

The integration of FinTech into the traditional financial sector presents a complex array of challenges and opportunities. Financial institutions face the task of integrating new technologies into existing systems, managing data security, and ensuring compliance with evolving regulatory standards. The collaboration with FinTech companies, while beneficial, introduces concerns such as potential loss of control over customer relationships, increased operational risks, and the need for continuous adaptation to rapidly changing technologies (FMA - Finanzmarktaufsicht. (2021)., n.d.). Addressing these challenges requires a balanced approach that combines innovation with robust risk management strategies.

The FinTech sector in Austria is experiencing transformative growth, driven by technological innovation and strategic collaborations. The Austrian Financial Market Authority (FMA) plays a key role in guiding this growth, balancing innovation with consumer protection and regulatory compliance. Collaborations between traditional financial institutions and FinTech startups are reshaping the industry, enhancing services, and redefining customer engagement. The integration of technologies like AI, blockchain, and data analytics is central to this transformation, offering new opportunities for efficiency and innovation. Despite these advancements, challenges remain, particularly in integrating new technologies, managing data security, and adhering to regulatory standards. These challenges require a balanced approach, combining innovation with robust risk management.

Austria's FinTech sector stands at a crucial juncture, poised for continued growth and innovation. The trends in transaction values and user demographics paint a promising picture, particularly for areas like digital payments and neobanking.

This growth trajectory shows the necessity to be bolstered by a stable regulatory environment and a significant shift in consumer behavior towards digital financial solutions. As the industry matures, it is poised to become an integral component of Austria's financial services landscape, reflecting a fundamental shift in the consumption and provision of financial services. This evolution heralds a new era in digital finance, characterized by enhanced accessibility, efficiency, and a strong alignment with modern consumer needs.

A pivotal aspect of this evolution is the potential integration of Islamic finance into Austria's FinTech offerings. This integration represents not just a diversification of products but also a commitment to ethical and socially responsible financial practices.

By embracing the principles of Islamic finance, such as risk-sharing and asset-backed financing, Austria's FinTech sector can attract a broader customer base and introduce innovative, potentially more stable financial models. This strategic move towards inclusivity and ethical finance aligns with global trends and positions Austria as a leader in a more diverse and sustainable financial ecosystem.

As Austria's FinTech sector prepares to navigate the technological and economic changes of the future, its forward-looking approach and willingness to embrace collaborative efforts, including the integration of Islamic finance, will be key to its success. This approach not only enhances the sector's appeal but also ensures its relevance and resilience in a rapidly evolving global financial landscape. Austria's FinTech sector, therefore, stands not just as a testament to the country's innovative spirit but also as a beacon for the future of inclusive and responsible digital finance.

Chapter 3. Prospects for the development of Islamic finance based on FinTech in Austria

3.1 Challenges and Opportunities in Integrating FinTech into Islamic Finance in Austria

In the rapidly evolving landscape of financial technology (FinTech) the Islamic finance sector stands at a crossroads of traditional principles and innovative digital solutions. This juxtaposition presents both unique challenges and unprecedented opportunities. As Islamic financial institutions navigate through the complexities of integrating FinTech, they encounter regulatory, technological, and Shariah compliance hurdles. However, these challenges are counterbalanced by the potential for FinTech to revolutionize Islamic finance, offering cost-effective, inclusive, and innovative financial products. This section delves into the intricate dynamics of integrating FinTech in Islamic finance, exploring the obstacles faced and the prospects that lie ahead, as illuminated by the insights of Hazik and Hassnian (2019) in their work on Blockchain, FinTech, and Islamic Finance.

Challenges and opportunities in Integrating FinTech into Islamic Finance are as follows (figure 14):

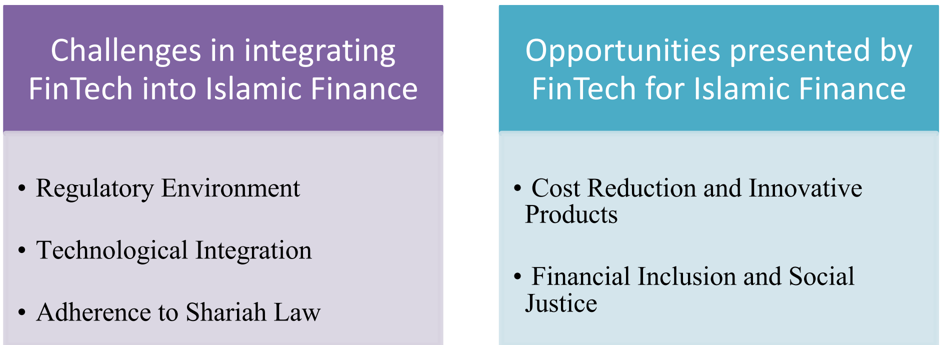

Figure 14. Challenges and opportunities of FinTech in Islamic Finance

Source: compiled by the Author

1. **Regulatory Environment:** The primary challenge in adopting Islamic FinTech is the constantly evolving regulatory environment. For instance, the dynamic nature of the Initial Coin Offering (ICO) market requires continuous adaptation. Regulatory limitations and concerns could hinder Islamic finance institutions' ability to adopt new models linked to various FinTech themes, such as decentralization and privacy.

2. **Technological Integration:** The significant cost and integration requirements of FinTech pose challenges. Limited resources may push FinTech initiatives to the backburner, as Islamic financial institutions grapple with disruptive innovations within their existing frameworks.
3. **Adherence to Shariah Law:** Ensuring strict Shariah compliance remains a top priority and a fundamental challenge for Islamic FinTech platforms. Shariah advisory scholars play a crucial role in this aspect (Hazik & Hassnian, 2019).

Opportunities Presented by FinTech for Islamic Financial Institutions are following:

1. **Cost Reduction and Innovative Products:** Islamic FinTech offers opportunities for cutting costs and offering innovative products, potentially reaching the unbanked Muslim population. This can be particularly impactful in regions like Southeast Asia, where a large portion of the population lacks access to traditional financial services.
2. **Financial Inclusion and Social Justice:** Islamic FinTech can promote economic, environmental, financial, and social goals, including financial inclusion, poverty alleviation, and social justice. It enables greater access to Islamic financial services in more efficient ways (Hazik & Hassnian, 2019).

Hazik Mohamed and Hassnian Ali highlight the need for commitment and collaboration to realize the potential benefits of FinTech innovation in Islamic finance. Building the Islamic FinTech ecosystem involves various market participants and stakeholders working towards shared goals of a unified Islamic economic community and increased financial inclusion. The Islamic world is ripe for technology transformation, and FinTech can play a pivotal role in this process (Hazik & Hassnian, 2019).

Dynamic intersection of Islamic finance and FinTech, practical applications and case studies offer invaluable insights. These real-world examples not only demonstrate the innovative use of technology in adhering to Shariah principles but also highlight the transformative impact of FinTech on the Islamic finance sector. From pioneering crowdfunding platforms to the development of regulatory frameworks, these case studies serve as beacons, guiding the way toward a more inclusive, efficient, and compliant financial future. They exemplify how Islamic financial institutions are embracing digital solutions to meet the unique demands of their market, thereby shaping a new era in Islamic finance that harmonizes tradition with technological advancement (Hazik & Hassnian, 2019).

In the Austrian financial sector, the integration of FinTech presents its unique set of challenges and opportunities. The Austrian government's role in supporting this integration is significant, marked by initiatives such as hosting FinTech events and creating supportive regulatory policies. These efforts are pivotal in enhancing operational efficiencies and customer access to financial services through digital innovations. However, traditional banks in Austria face challenges in adopting new technologies, which can impact their competitiveness against more agile FinTech startups. The consumer preference towards these startups further pressures traditional banks to adapt their strategies and incorporate digitalization more deeply into their operations. This need for innovation in the face of evolving regulatory landscapes and emerging business models like platform banks and data vault banks calls for a strategic reassessment of traditional banking practices. Despite these challenges, Austria's FinTech sector, buoyed by supportive government policies and technological advancements, holds considerable potential for growth and innovation, making it crucial for traditional banks to adapt and remain competitive in this evolving landscape (*Fintech and the Digitalization of Austria's Banking Sector | Global Risk Intel*, n.d.)).

In synthesizing these perspectives, it becomes evident that whether in the context of Islamic finance globally or the specific case of Austria's financial sector, the integration of FinTech is a complex but crucial undertaking. It demands a careful balance between adhering to traditional principles and embracing technological advancements, all while navigating regulatory landscapes and market preferences. The future of finance in these diverse contexts hinges on the ability of institutions to adapt, innovate, and collaborate in an increasingly digital world.

3.2 The roadmap for the FinTech-based Islamic finance development in Austria

This chapter explores the feasibility of Islamic finance based on FinTech within the Austrian financial milieu. The paragraph 3.2 aims to meticulously construct a detailed strategic roadmap that synergizes the intricate principles of Islamic finance with the avant-garde innovations in FinTech. This inquiry is particularly salient within the unique financial landscape of Austria, where there is an emergent niche for Islamic financial services.

The main stages to develop Islamic Finance based on FinTech in Austria is formed and presented in the roadmap **(Appendix 1)**. The roadmap anticipates navigating a complex array of regulatory, technological, and market challenges, unearthing opportunities for harmonious integration. By offering a nuanced analysis, this chapter aspires to underscore the transformative potential of Islamic FinTech, not only within the confines of Austria's financial ecosystem but also as a model with far-reaching implications for the broader European context. This exploration seeks to contribute a seminal perspective to the discourse on financial inclusivity and the burgeoning role of technology in ethical finance. The main 10 stages of the roadmap involve:

1. **Market Analysis and Research**

This stage in the development of Islamic finance based on FinTech in Austria is foundational. It involves conducting extensive research to understand the current dynamics of the Islamic finance market. This includes analyzing existing Islamic financial products available in Austria, studying customer demographics to comprehend the demand for such products, and scrutinizing the regulatory environment and competitive landscape. The key activity in this phase is to compile a detailed market analysis report. This report is expected to provide a comprehensive understanding of the market, highlighting opportunities and challenges for FinTech development within the Islamic finance sector. The timeline for this phase is set for the first three months, emphasizing the importance of a solid foundation before proceeding with FinTech development.

2. **Regulatory Compliance and Framework**

During the second stage (2-3 months), the focus is on aligning emerging FinTech solutions with Austrian financial regulations and Islamic finance principles. This critical phase demands comprehensive consultations with legal experts and Islamic scholars, forming a collaboration that bridges legal expertise with religious doctrine. The object is to develop a robust regulatory compliance framework that assures the legality and ethical integrity of Islamic FinTech initiatives. This framework is not just a regulatory blueprint but also a strategic tool, crucial for ensuring that FinTech innovations are compliant and resonate with the ethical standards of Islamic finance, thereby laying a strong foundation for sustainable and trustworthy financial technology development in the Austrian Islamic finance landscape.

3. Technological Infrastructure Development

In the 3rd stage (4 months), the roadmap emphasizes the establishment of a robust technological foundation essential for Islamic finance based on FinTech in Austria. This phase is pivotal in ensuring the compatibility of technological solutions with the unique features of Islamic finance. It includes the design and implementation of secure online banking systems, mobile applications, and efficient transaction processing systems. These technological solutions must accommodate specific Islamic financial instruments like Murabaha, Mudaraba, and Sukuk. The object is to develop a technology infrastructure that is not only advanced and secure but also adheres to the principles of Islamic finance, providing a reliable and efficient platform for the launch of innovative FinTech services.

4. Product Development and Innovation

The 4th phase positioned for 4 months, centers on the creation of innovative financial products that align with Islamic finance principles. This phase is instrumental in translating the principles of Sharia-compliant finance into practical, user-friendly FinTech solutions. It involves developing products like interest-free loans, Islamic banking accounts, and Sharia-compliant investment funds. This stage is characterized by a rigorous product design and development process, ensuring that each product not only adheres to Islamic financial law but also meets the modern consumer's expectations for digital financial services. The success of this phase is critical for establishing a diverse portfolio of Islamic FinTech products that are both innovative and ethical.

5. Partnerships and Collaboration

The fifth stage lasting 2 months, is dedicated to establishing vital strategic alliances essential for the advancement and broader reach of Islamic FinTech solutions in Austria. This phase involves engaging in collaborative efforts with established Islamic finance institutions and Tech companies, and seeking guidance and support from government bodies. Building a network for the exchange of resources and knowledge is a focal activity, aimed at bolstering the development of FinTech initiatives. The anticipated outcome of this phase is the formation of strategic partnerships, which are expected to provide a strong foundation and necessary support for the successful implementation and sustainability of Islamic FinTech projects.

6. **Education and Awareness Campaigns**

The phase, scheduled for 2 months, which object is to significantly enhance market awareness and understanding of Islamic finance and FinTech. This phase involves organizing educational initiatives such as workshops, seminars, and targeted marketing campaigns. The development of comprehensive educational materials and resources plays a crucial role in this phase. The primary goal is to increase public awareness and acceptance of Islamic FinTech solutions, laying a foundation for greater market penetration and successful integration of these financial technologies into the mainstream financial ecosystem.

7. **Pilot Testing and Feedback**

In this phase, (lasting from 2 to 3 months), emphasis shifts to real-world application and evaluation of the Islamic FinTech products. This phase involves deploying pilot versions of these products in controlled environments to gather valuable user feedback. Such feedback is critical for identifying areas of improvement and ensuring that the products not only fulfill user requirements but also adhere to the ethical standards of Islamic finance. The insights gained from this phase are instrumental in refining the products, making them ready for broader market introduction.

8. **Scaling and Expansion**

The phase, (slated for 3 months), marks a crucial transition in the roadmap, focusing on the strategic enlargement of the Islamic FinTech initiative's footprint. This period is characterized by the scaling of operations to extend reach within Austria, coupled with exploratory moves towards other European markets. This phase demands meticulous strategizing for effective growth and market penetration, aiming to solidify the Islamic FinTech initiative's presence and influence in a broader, potentially international, arena. This stage is pivotal for the evolution of successful local models into more expansive, impactful financial solutions.

9. **Continuous Innovation and Adaptation**

The ongoing process is crucial for maintaining the relevance and competitiveness of Islamic FinTech solutions. It involves staying abreast of advancements in FinTech and adapting to changes in Islamic finance principles. This phase calls for a commitment to ongoing product and service innovation, ensuring that the FinTech offerings remain cutting-edge and aligned with the evolving needs of the market and the principles of Islamic finance. This continuous cycle of innovation and adaptation is essential for the long-term success and sustainability of Islamic FinTech initiatives.

10. Sustainability and Social Impact Measurement

Final phase, positioned as the concluding evaluation, is instrumental in appraising the enduring societal and environmental ramifications of Islamic FinTech initiatives. This stage entails a detailed analysis of the economic, social, and environmental impacts, aiming to ascertain the long-term sustainability and societal contributions of these financial technologies. This assessment is critical for validating the holistic value and enduring viability of Islamic FinTech solutions, ensuring they align with broader societal objectives and sustainable development goals.

The feasibility of developing Islamic finance based FinTech in Austria is highly promising. The comprehensive roadmap outlined demonstrates a clear path for integrating cutting-edge financial technology within the framework of Islamic finance. Each phase, from market analysis to sustainability assessments, builds a strong foundation for this integration. The roadmap not only addresses the challenges but also harnesses opportunities, ensuring that Islamic FinTech in Austria is viable, compliant, innovative, and aligned with both market needs and ethical principles, setting a precedent for future developments in this field.

Conclusion

This thesis has comprehensively explored the evolving landscape of Islamic finance, particularly focusing on its integration with Financial Technology (FinTech) in Austria. Through an in-depth analysis, the study has addressed several critical questions, shedding light on the dynamic interplay between regulatory frameworks, market challenges and opportunities, and the overall impact on the growth and competitiveness of the Islamic finance sector within the Austrian financial context by addressing following questions:

Main Research Question: *What are the prospects for the development of Islamic finance based on FinTech in Austria?*

Sub-Questions:

What are the economic essence and basic elements of Islamic finance system that distinguish it from traditional systems?

What challenges and opportunities does the Austrian market present for Islamic finance driven by FinTech innovations?

What potential impacts could FinTech-based Islamic finance have on the growth and competitiveness of the Austrian financial system?

Prospects for Islamic Finance Based on FinTech in Austria:

The research has underscored the promising potential of Islamic finance development in Austria, facilitated by FinTech. This innovative integration is poised to revolutionize the sector, enhancing the efficiency, inclusivity, and Sharia compliance of Islamic financial services. The synergy between Islamic finance principles and FinTech innovation offers a novel paradigm, redefining the financial landscape in Austria by introducing ethical, transparent, and equitable financial practices.

Regulatory Frameworks Influencing FinTech in Islamic Finance:

A pivotal aspect of this integration is the evolving regulatory landscape in Austria. The study has highlighted significant advancements since 2010, with the establishment of standards like "ON-Regel

142001-1" and "ON-Regel 142001-2", reflecting Austria's commitment to accommodating Islamic finance within its legal framework. These regulatory strides are crucial for ensuring a harmonious blend of Sharia-compliant products with Austria's financial regulations, demonstrating the country's adaptability and openness to diverse financial systems.

Challenges and Opportunities in the Austrian Market:

Navigating the Austrian market, the research identifies a spectrum of challenges and opportunities for Islamic finance driven by FinTech. Challenges such as regulatory complexities, technological integration, and adherence to Shariah principles are juxtaposed with significant opportunities. These include leveraging FinTech to offer innovative, inclusive, and cost-effective financial solutions that align with Islamic ethical standards. The Austrian market, therefore, stands as a fertile ground for the growth and innovation of Islamic finance, catalyzed by technological advancements.

Impact on Growth and Competitiveness:

The anticipated impact of FinTech on Islamic finance in Austria is multifaceted. The integration is set to diversify financial products, align them with ethical standards, and expand the customer base. This strategic shift not only enhances the sector's competitiveness but also aligns it with global trends towards sustainable and responsible finance. The fusion of FinTech with Islamic finance is not merely a technological upgrade but a transformative force that could redefine the sector's efficiency, accessibility, and compliance, ensuring its relevance in the global financial market.

Insights from the Western Economic Model:

The study of the Western economic model in the first chapter was critical in evaluating the compatibility of Islamic finance within a Western-dominated financial landscape. This exploration revealed the adaptability and potential for Islamic finance principles to coexist and thrive within a Western framework, particularly when augmented by FinTech innovations. The analysis provided valuable insights into how Islamic finance can be tailored and implemented in Austria, ensuring both compliance with Sharia principles and congruence with contemporary financial practices.

Rationale Behind Studying FinTech and Islamic Finance Collaboration:

The focus on the collaboration between FinTech and Islamic Finance, particularly in the Austrian context, stemmed from the unique position of Austria as an emerging hub for Islamic FinTech. This exploration led to the conceptualization of a strategic roadmap aimed at effectively integrating these two sectors. The roadmap is envisioned as a blueprint for navigating the complexities and capitalizing on the opportunities presented by this unique financial amalgamation.

The Roadmap and Its Expectations for Austria:

The proposed roadmap is an ambitious plan aimed at integrating FinTech innovations with Islamic financial principles in Austria's financial sector. It aspires to elevate Sharia compliance, enhance financial inclusivity, and open up new market segments interested in ethical financing. The roadmap’s implementation is expected to bolster the efficiency and competitiveness of Austria's Islamic finance sector, positioning Austria as a pivotal player in Islamic FinTech in Europe. It is anticipated to attract a diverse customer base and set a precedent for the integration of modern financial technologies with traditional Islamic financial principles.

This thesis thus provides a comprehensive and nuanced understanding of the intricate dynamics shaping the Islamic finance sector in Austria, particularly in the context of FinTech integration. The roadmap proposed herein is not just a strategic plan but a visionary approach, aiming to establish Austria as a leader in the global Islamic FinTech landscape. It underscores Austria’s potential to pioneer a financial sector that is not only technologically advanced but also ethically grounded and socially responsible.

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Appendix 1

THE ROADMAP FOR THE ISLAMIC FINANCE DEVELOPMENT BASED ON FINTECH IN AUSTRIA

№	Phase	Object	Activities	Period	Expected Outcome
1	**Initial Phase: Market Analysis and Research**	Conduct a comprehensive analysis of Austria's Islamic finance landscape.	1. Research existing Islamic financial products in Europe. 2. Analyze customer demographics, regulatory environment, and competitive scene. 3.Prepare a market analysis report.	3 months	A foundational understanding of the Islamic finance market in Austria.
2	**Regulatory Compliance and Framework**	Ensure compliance with Austrian financial regulations and Islamic finance principles.	1. Consult with legal experts and Islamic scholars. 2. Align FinTech solutions with legal and ethical requirements. 3. Develop a regulatory compliance framework.	2-3 months	A clear compliance and ethical framework for FinTech development.
3	**Technological Infrastructure Development**	Develop or adapt technological infrastructures for Islamic finance products.	1. Design secure online banking systems and mobile applications. 2. Develop efficient transaction processing systems. 3. Focus on technologies for Murabaha, Mudaraba, and Sukuk.	4 months	A robust technological infrastructure for Islamic FinTech services.
4	**Product Development and Innovation**	Create innovative financial products aligning with Islamic finance principles.	1. Develop interestfree loans and Islamic banking accounts. 2. Innovate Shariacompliant investment funds. 3. Engage in product design and development.	4 months	A portfolio of innovative Islamic FinTech products.
5	**Partnerships and Collaboration**	Establish partnerships to enhance product development and market reach.	1. Collaborate with Islamic finance institutions and tech companies. 2. Engage with government bodies. 3. Build a network for resource sharing.	2 months	Strategic partnerships to support FinTech initiatives.
6	**Education and Awareness Campaigns**	Increase market awareness and education on Islamic finance and FinTech.	1. Conduct workshops and seminars. Launch marketing campaigns. Develop educational materials.	2 months	Increased public awareness and acceptance of Islamic FinTech solutions.

№	Phase	Object	Activities	Period	Expected Outcome
7	**Pilot Testing and Feedback**	Test financial products and gather user feedback for refinement.	1. Implement pilot projects. 2. Collect and analyze user feedback. 3. Refine products based on experiences.	2-3 months	Refined and market-ready FinTech products.
8	**Scaling and Expansion**	Expand the reach of successful products within Austria and beyond.	1. Scale operations for broader market access. 2. Explore expansion into other European markets. 3. Develop strategies for growth.	3 months	Wider adoption and market presence of Islamic FinTech solutions.
9	**Continuous Innovation and Adaptation**	Ensure long-term relevance and competitiveness of FinTech solutions.	1. Stay updated with FinTech advancements. 2. Adapt to changes in Islamic finance. 3. Engage in ongoing innovation.	Ongoing	Sustained innovation and adaptability in the FinTech sector.
10	**Sustainability and Social Impact Measurement**	Assess the societal contributions and sustainability of FinTech solutions.	1. Measure economic and social impacts. 2. Conduct sustainability assessments. 3. Report on societal contributions.	Final Evaluation *(overall:l 22-24 months)*	Understanding of the long-term impacts and benefits of Islamic FinTech solutions.