

# Beyond the Sandbox: Rethinking Fintech Regulatory Innovation in Kuwait through Comparative Analysis

Misbau Alamu Lateef\*<sup></sup>, Ammar Abdullah Alhammadi

Law School, University of Hull, Hull, UK

Email: \*M.lateef@hull.ac.uk, A.Alhammadi-2021@hull.ac.uk

**How to cite this paper:** Lateef, M. A., & Alhammadi, A. A. (2025). Beyond the Sandbox: Rethinking Fintech Regulatory Innovation in Kuwait through Comparative Analysis. *Beijing Law Review*, 16, 2259-2272. <https://doi.org/10.4236/blr.2025.164114>

**Received:** August 25, 2025

**Accepted:** November 28, 2025

**Published:** December 1, 2025

Copyright © 2025 by author(s) and Scientific Research Publishing Inc. This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>



Open Access

## Abstract

This paper examines Kuwait's fintech regulatory challenges through a comparative analysis of global regulatory models, with particular focus on the effectiveness of regulatory sandboxes versus innovation hubs. Drawing on theoretical frameworks including Disruptive Innovation Theory and Public Interest Theory, the study analyses regulatory approaches in the United Kingdom and Saudi Arabia to identify lessons for Kuwait's fintech sector development. The research reveals that whilst regulatory sandboxes have gained global popularity as innovation facilitation mechanisms, empirical evidence suggests innovation hubs may provide superior developmental benefits when implemented as part of a comprehensive regulatory strategy. The paper identifies four fundamental problems constraining Kuwait's fintech sector: regulatory constraints and compliance challenges, absence of dedicated regulatory frameworks, inadequate provisions for balancing innovation with financial stability, and insufficient cybersecurity and data privacy protections. Through critical evaluation of international best practices, the study argues that Kuwait's regulatory development should prioritise establishing a comprehensive innovation hub as the foundation of a broader regulatory ecosystem that could also incorporate sandbox elements. The findings suggest that effective fintech regulation requires adaptive governance frameworks capable of matching technological innovation speed whilst maintaining essential consumer protections and financial stability measures.

## Keywords

Fintech Regulation, Regulatory Sandboxes, Innovation Hubs, Kuwait, Comparative Analysis, Digital Finance, Financial Innovation, GCC

## 1. Introduction

The global financial technology (fintech) revolution has fundamentally transformed financial service delivery mechanisms, moving from traditional brick-and-mortar institutions to sophisticated digital ecosystems (Cumming, Johan, & Reardon, 2023: pp. 413-436). This transformation has been particularly pronounced in jurisdictions that have implemented progressive regulatory frameworks designed to facilitate innovation whilst maintaining financial stability. However, not all countries have successfully navigated this regulatory evolution, with some markets struggling to accommodate emerging technologies within existing regulatory structures.

Kuwait presents a particularly instructive case study of regulatory challenges in fintech development. Despite possessing favourable market conditions, including high mobile penetration rates (146.6%), widespread smartphone ownership (99.7% of households), and substantial digital literacy levels, Kuwait's fintech sector remains nascent compared to regional counterparts (Rabaa'i, 2023: pp. 536-580). This paradox raises critical questions about the role of regulatory frameworks in either facilitating or constraining fintech innovation.

The regulatory sandbox concept, pioneered by the United Kingdom's Financial Conduct Authority in 2016, has emerged as the dominant global approach for fostering fintech innovation through controlled experimentation environments (Fahy, 2022: pp. 162-184). Over fifty jurisdictions worldwide have implemented sandbox frameworks, yet recent scholarship questions their actual effectiveness. Buckley et al. (2020: pp. 55-98) demonstrate that whilst sandboxes have achieved global popularity, the actual number of participating entities remains remarkably small, suggesting that alternative approaches such as innovation hubs may provide superior developmental benefits.

This paper contributes to the growing debate on optimal fintech regulatory design by examining Kuwait's regulatory challenges through comparative analysis with successful models in the United Kingdom and Saudi Arabia. The research addresses a critical gap in understanding how emerging markets can develop effective fintech regulatory frameworks that balance innovation facilitation with essential consumer protections and financial stability requirements.

The paper is structured as follows: Section 1 is this introductory part. Section 2 establishes the theoretical foundations through examination of Disruptive Innovation Theory, Public Interest Theory, and regulatory innovation concepts. Section 3 analyses Kuwait's current fintech landscape and regulatory challenges. Section 4 provides comparative analysis of UK and Saudi Arabian regulatory models. Section 5 critically evaluates the sandbox versus innovation hub debate with implications for Kuwait. Section 6 discusses findings and proposes recommendations for Kuwait's regulatory development. Section 7 concludes with theoretical and practical implications.

## 2. Theoretical Foundations

### 2.1. Disruptive Innovation and Fintech

Clayton Christensen's Disruptive Innovation Theory provides essential analytical framework for understanding how fintech companies leverage technological innovations to challenge established financial service providers (Christensen et al., 2018: pp. 1043-1078). The theory distinguishes between sustaining innovations that improve existing products and disruptive innovations that introduce simplified, more accessible alternatives initially targeting niche markets before expanding to mainstream provision.

Within fintech contexts, disruptive innovations have fundamentally transformed financial service landscapes by providing solutions that are simultaneously more affordable and accessible, particularly for previously underserved populations (Sanyaolu et al., 2024: pp. 54-73). Peer-to-peer lending platforms exemplify this disruption by enabling direct lending without traditional financial institution intermediation, offering accelerated processing times and competitive interest rates that appeal to consumers who may not qualify for conventional banking products (Allen, 2021).

The application of Disruptive Innovation Theory to Kuwait's context reveals how regulatory frameworks can either facilitate or impede disruptive potential. Kuwait's regulatory structure, designed primarily for traditional banking operations, restricts fintech firms' market entry and innovation capabilities compared to jurisdictions implementing adaptive regulatory approaches (Zalan & Toufaily, 2017: p. 415). This regulatory inflexibility limits the transformative potential of fintech innovations within Kuwait's financial ecosystem.

### 2.2. Public Interest Theory and Regulatory Justification

Public Interest Theory posits that regulatory intervention exists to serve public welfare by ensuring transparency, stability, and consumer protection within market systems (Livingstone, Lunt, & Miller, 2007: pp. 63-89). Within fintech contexts, this theory supports arguments for regulatory oversight that creates safeguards protecting consumers from risks associated with financial innovation, including fraud, data privacy breaches, and financial instability.

The theory proves particularly relevant for understanding regulatory requirements within fintech sectors, where innovations such as mobile payments and peer-to-peer lending gain popularity whilst potentially exposing consumers to inadequately addressed risks (Agarwal & Zhang, 2020: pp. 353-367). However, Public Interest Theory application requires careful balance between consumer protection and innovation facilitation. Overly stringent regulations could stifle innovation and limit sector growth, particularly where fintech firms face high compliance costs or excessive operational restrictions (Alsmadi et al., 2023: pp. 14-25).

### 2.3. Regulatory Innovation Frameworks

Walker (2023: pp. 227-244) provides critical insights through his analysis of fi-

nancial technology evolution, conceptualising money and finance as fundamental social technologies facilitating exchange and production throughout history. His concept of “regulatory lag”—where delays in policy adaptation pose significant barriers to fintech sector growth—proves particularly relevant for understanding Kuwait’s challenges. Walker argues that effective fintech regulation requires “Multiple Adaptive Governance” frameworks capable of matching technological innovation speed and depth.

The regulatory sandbox concept represents one attempt to address this challenge by providing controlled environments where fintech firms can test innovative products under regulatory oversight whilst balancing risk management with innovation facilitation (Fáykiss et al., 2018: pp. 43-67). First introduced by the UK’s Financial Conduct Authority, sandboxes have become widely adopted tools for managing innovation-regulation tensions whilst enabling technological experimentation within government-supervised parameters.

However, critical analysis reveals that regulatory sandboxes require careful design to avoid creating what Buckley et al. (2020: p. 85) term “regulatory-innovation dissonance”, where compliance requirements designed for traditional banking operations become impediments to digital-first business models. This theoretical insight suggests that regulatory approaches must recognize fundamental differences between conventional financial services and fintech operations, requiring adaptive frameworks accommodating rapid technological advancement whilst maintaining essential consumer protections.

### **3. Kuwait’s Fintech Landscape: Challenges and Constraints**

#### **3.1. Current State of Development**

Kuwait’s fintech sector remains in nascent development stages compared to prominent Gulf Cooperation Council countries, including the United Arab Emirates and Saudi Arabia (Gulrez, 2021: pp. 223-241). The ecosystem primarily focuses on foundational services, including digital payments, mobile banking applications, and digital wallet solutions, whilst areas such as peer-to-peer lending, blockchain applications, and insurance technology remain largely underdeveloped (Banerjee, 2020: pp. 335-344).

Empirical evidence reveals significant awareness gaps, with only 33% of Kuwaiti consumers having heard of the term “FinTech” despite 96% having experience with online shopping and 72% considering themselves digitally literate (Rabaa’i, 2022: pp. 16-17). This disconnect between technological capability and fintech awareness suggests that regulatory constraints compound market education and consumer engagement barriers.

Consumer research indicates that whilst 54% of Kuwaiti respondents express positive attitudes toward fintech adoption, 57% have never used any fintech product or service, highlighting the disconnect between consumer readiness and actual market penetration (Rabaa’i, 2022: pp. 21-22). Only 15% of respondents actively use mobile wallet applications, despite 72% expressing interest in such technolo-

gies (Rabaa'i, 2023: pp. 21-22). This disparity demonstrates how regulatory ambiguity translates into practical barriers preventing willing consumers from accessing innovative financial services.

### 3.2. Regulatory Constraints and Compliance Challenges

Kuwait's regulatory framework, crafted primarily for traditional banking operations, requires fintech firms to navigate complex compliance requirements often misaligned with digital-first operational models (Goo & Heo, 2020: p. 43). High compliance costs, prolonged approval processes, and lack of fintech-specific guidelines place substantial financial and administrative burdens on startups, making competitive market entry particularly challenging for emerging companies with limited resources.

Specific examples of regulatory constraints include Kuwait's Banking Law No. 32 of 1968 and its amendments, which mandate that all financial service providers maintain physical branch presence and comply with capital adequacy requirements designed for traditional banks. These requirements create particular challenges for digital-only fintech startups. For instance, the Central Bank of Kuwait's Instruction No. 2/BS/IBS/336/2014 regarding electronic banking services requires extensive documentation and security protocols that, whilst appropriate for large banks, impose disproportionate compliance costs on small fintech firms operating lean, technology-driven business models. Additionally, Law No. 20 of 2014 regarding electronic transactions provides a general framework but lacks specific provisions for emerging technologies such as blockchain-based transactions or cryptocurrency operations, creating legal uncertainty for firms seeking to deploy these innovations.

The absence of adaptive regulations affects new technology adoption, as regulatory uncertainty surrounding blockchain and artificial intelligence technologies discourages Kuwaiti fintech firms from integration due to fears of violating existing laws (Choi et al., 2020: p. 8882). This technological adoption hesitancy restricts service scope available within Kuwait's fintech ecosystem whilst reducing sector competitive advantages on regional scales.

Kuwait's limited fintech ecosystem is evidenced by only 4% of identified fintech solutions across 22 Arab countries currently operating in Kuwait (Rabaa'i, 2022: p.10). Furthermore, Kuwait attracted merely 4% of MENA fintech deals and 6% of total funding in 2019, demonstrating how regulatory inflexibility translates into reduced investment attractiveness and stunted sector growth.

### 3.3. Cybersecurity and Data Privacy Gaps

Kuwait's regulatory approach to cybersecurity and data privacy lacks dedicated, comprehensive frameworks comparable to the European Union's General Data Protection Regulation or California Consumer Privacy Act (Manda & Eshkita, 2019: pp. 109-130). Current data privacy regulations remain limited through guidelines that do not specifically address complexities and risks associated with digital finance operations.

Consumer behaviour analysis reveals that security concerns significantly influence fintech adoption patterns within Kuwait's market context. Research demonstrates that 69% of potential users identify security as the most critical factor when considering fintech products, followed closely by privacy considerations at 67% (Rabaa'i, 2023: p. 22). These findings underscore the importance of robust cybersecurity frameworks in regulatory design, particularly given that 50% of consumers express confidence in mobile device security whilst 21% remain uncertain about conducting financial transactions through digital platforms (Rabaa'i, 2023: p. 16).

## **4. Comparative Analysis: UK and Saudi Arabian Models**

### **4.1. United Kingdom: Pioneer of Regulatory Innovation**

The United Kingdom has established itself as a global leader in fintech regulation through pioneering approaches balancing innovation facilitation with robust consumer protection (Fahy, 2022: pp. 162-184). The Financial Conduct Authority's regulatory sandbox, introduced in 2016, created a controlled environment where fintech firms can test innovative products with real customers within specified parameters whilst benefiting from regulatory forbearance in specific areas.

The FCA's approach emphasizes outcomes-based regulation focusing on achieving specific consumer protection and market integrity objectives rather than prescriptive rule-following (Ringe & Ruof, 2020: pp. 604-629). This flexibility has attracted significant international investment and established London as a global fintech hub with hundreds of fintech companies achieving successful market entry and scaling.

Beyond the sandbox, the UK has implemented comprehensive fintech-specific regulatory guidance addressing areas including open banking, cryptocurrency regulation, and digital payment services whilst maintaining proportionate approaches scaling regulatory requirements according to firm size, business model complexity, and potential systemic impact (Fahy, 2022: pp. 162-184). The FCA's Innovation Hub provides additional support through dedicated contact points for innovative firms seeking regulatory guidance.

### **4.2. Saudi Arabia: Regional Leadership through Vision 2030**

Saudi Arabia has emerged as a regional fintech leader through implementing comprehensive regulatory frameworks aligned with Vision 2030 objectives for economic diversification (Aysan et al., 2024). The Saudi Central Bank established a regulatory sandbox enabling fintech firms to test innovative products within controlled environments whilst receiving regulatory guidance and support for compliance with applicable requirements.

The Saudi approach emphasizes Islamic finance compatibility, recognizing the importance of Sharia-compliant fintech solutions within the regional market (Abdeljawad, Hashem, & Rashid, 2022: pp. 193-222). This focus on Islamic fintech has attracted international firms seeking to develop Sharia-compliant digital fi-

nancial services whilst supporting domestic firms in creating innovative solutions addressing regional market needs.

Fintech Saudi, the national fintech programme, provides comprehensive support for ecosystem development through initiatives including startup incubation, regulatory guidance, talent development, and international partnership facilitation (Mohamed, 2023: pp. 191-210). The programme coordinates between multiple stakeholders including regulatory authorities, financial institutions, technology companies, and educational institutions to create integrated support systems.

### 4.3. Lessons for Kuwait

The experiences of the UK and Saudi Arabia demonstrate that successful fintech regulation requires balanced approaches combining innovation facilitation with appropriate consumer protection and financial stability measures. Both countries have achieved significant fintech sector growth through implementing dedicated regulatory frameworks specifically designed to address digital finance characteristics whilst maintaining flexibility for technological advancement.

Key lessons include the importance of regulatory sandboxes for enabling controlled experimentation, the value of proportionate regulation scaled to firm size and systemic importance, and the necessity of ongoing dialogue between regulators and industry participants (Fáykiss et al., 2018: pp. 43-67). Both countries demonstrate how progressive regulation can attract investment, encourage innovation, and establish competitive fintech ecosystems whilst maintaining essential protections.

For Kuwait, adopting elements from both UK and Saudi Arabian approaches could provide pathways for developing effective fintech regulation addressing Kuwait's specific market characteristics (Khan, Khan, & Ghafoor, 2023: pp. 1263-1281). The UK's outcomes-based regulation could provide frameworks for encouraging innovation whilst Saudi Arabia's focus on regional market needs and comprehensive ecosystem support could inform Kuwait's approach within GCC contexts.

## 5. Beyond Sandboxes: The Innovation Hub Alternative

### 5.1 Critical Evaluation of Regulatory Sandboxes

Whilst regulatory sandboxes have achieved global popularity with over fifty jurisdictions implementing such frameworks, empirical evidence questions their actual effectiveness in fostering fintech development. Buckley et al. (2020: pp. 70-72) demonstrate that the number of participating entities remains remarkably small relative to the resources invested and publicity generated. This limited participation suggests that sandboxes may not provide the comprehensive support necessary for meaningful fintech ecosystem development.

The Australian experience provides particularly instructive evidence. Despite establishing a regulatory sandbox, the Australian Securities and Investments Commission (ASIC) innovation hub supported 380 entities compared to only six enti-

ties utilizing its regulatory sandbox during comparable periods (Buckley et al., 2020: p. 73). This dramatic difference in utilization rates suggests that innovation hubs may provide superior developmental benefits through ongoing support and guidance rather than temporary regulatory relief.

Critical analysis reveals that sandboxes often suffer from several limitations. First, they typically accommodate only a small number of firms due to resource constraints and regulatory capacity limitations. Second, the temporary nature of sandbox participation may not provide sufficient time for complex fintech innovations to develop and demonstrate viability. Third, the transition from sandbox to full regulatory compliance often presents significant challenges that can undermine the initial benefits of participation.

## 5.2. Innovation Hubs as Complementary Mechanism

Innovation hubs offer comprehensive support mechanisms that address many limitations inherent in regulatory sandboxes. Rather than replacing sandboxes entirely, innovation hubs can serve as the foundational element of a comprehensive regulatory ecosystem where sandboxes operate as one tool among many. Innovation hubs offer ongoing guidance, informal advice on regulatory compliance, and assistance in interpreting requirements for specific business models (Buckley et al., 2020: p. 83).

The key advantages of innovation hubs include their scalability, as they can support numerous firms simultaneously without the resource-intensive monitoring required for sandbox participants. They provide continuous rather than temporary support, enabling firms to receive guidance throughout their development journey rather than during a limited testing period. Innovation hubs also facilitate knowledge sharing and network effects by bringing together multiple stakeholders including regulators, established financial institutions, and fintech startups.

Importantly, innovation hubs and regulatory sandboxes are not mutually exclusive but can function as complementary tools within an integrated regulatory strategy. While innovation hubs provide broad-based support to the entire fintech ecosystem, sandboxes can offer targeted assistance to firms requiring temporary regulatory relief for testing genuinely novel products. This complementary approach allows regulators to maximize the benefits of both mechanisms whilst addressing their respective limitations.

Buckley et al. (2020: p. 78) observe that regulators seeking to promote innovation cannot avoid the reality that effective fintech support demands intensive staff engagement with industry participants. Innovation hubs provide structured mechanisms for this engagement whilst maximizing the developmental impact of regulatory resources through scalable support models.

## 5.3. Implications for Kuwait's Regulatory Strategy

For Kuwait, the evidence suggests that establishing a comprehensive innovation hub should take priority as the foundation of a broader regulatory ecosystem that

could subsequently incorporate sandbox elements for specific use cases. An innovation hub could provide Kuwaiti fintech firms with essential regulatory guidance whilst building capacity within regulatory institutions to understand and respond to technological innovation.

The innovation hub approach would be particularly beneficial for addressing Kuwait's specific challenges. Given that only 33% of Kuwaiti consumers have heard of fintech despite high digital literacy rates (Rabaa'i, 2022: pp. 16-17), an innovation hub could facilitate market education and consumer engagement initiatives alongside regulatory support. The hub could also address security concerns—identified as critical by 69% of potential users (Rabaa'i, 2023: p. 22)—through collaborative development of cybersecurity standards and best practices.

Furthermore, an innovation hub aligned with regional approaches could facilitate collaboration with successful programs such as the UAE's Fintech Hive and Saudi Arabia's Fintech Saudi initiative. This regional integration could help Kuwait overcome its current position where it hosts only 4% of Arab fintech solutions and attracts minimal regional investment (Rabaa'i, 2022: p. 10).

## 6. Discussion and Recommendations

### 6.1. Addressing Kuwait's Regulatory Gaps

The analysis reveals four fundamental problems constraining Kuwait's fintech development that must be addressed through comprehensive regulatory reform. First, regulatory constraints and compliance challenges arising from frameworks designed for traditional banking create operational difficulties for digital-first business models. Second, the absence of dedicated fintech regulatory frameworks creates ambiguity and uncertainty that deters investment and innovation. Third, inadequate provisions for balancing innovation with financial stability leave both consumers and the financial system vulnerable to emerging risks. Fourth, insufficient cybersecurity and data privacy protections undermine consumer confidence and market development.

Addressing these challenges requires what Walker (2023: p. 300) terms "Technology Adaptive Regulation, Goals, and Ethics Template" (TARGET) approaches, creating regulatory frameworks combining legal obligations, detailed regulatory standards, and ethical principles within adaptive structures capable of continuous evolution. This approach would enable Kuwait to develop regulatory frameworks matching technological innovation speed whilst maintaining essential consumer protections.

### 6.2. Proposed Regulatory Framework for Kuwait

Based on comparative analysis and theoretical insights, Kuwait should implement a three-pillar regulatory framework. First, establish a comprehensive fintech innovation hub providing ongoing regulatory guidance, compliance support, and market development assistance. This hub should coordinate between regulatory authorities, financial institutions, and fintech firms to create an integrated support

ecosystem.

Second, develop adaptive regulatory guidelines specifically addressing fintech operations, including proportionate licensing requirements scaled to firm size and systemic importance. For example, a small fintech startup with less than 100 customers and handling transactions below KWD 1 million annually might qualify for a “lite” license requiring simplified documentation, reduced capital requirements (perhaps KWD 50,000 instead of the millions required for traditional banks), and streamlined reporting obligations. In contrast, a systemically important fintech firm processing over KWD 100 million in transactions annually or serving more than 10,000 customers would face enhanced requirements, including comprehensive risk management frameworks, regular audits, and capital buffers proportionate to their market impact. This tiered approach would also include clear frameworks for emerging technologies, including blockchain and artificial intelligence, and comprehensive cybersecurity and data privacy standards aligned with international best practices such as GDPR.

Third, create mechanisms for continuous regulatory evolution through regular stakeholder consultation, monitoring of international regulatory developments, and structured feedback loops enabling policy refinement based on market experience. This adaptive approach would address Walker’s (2023: pp. 252-253) concept of regulatory lag by ensuring policy frameworks evolve alongside technological advancement.

### 6.3. Implementation Considerations

Successful implementation requires addressing several critical factors. Resource allocation must be sufficient to support intensive regulatory engagement with industry participants, as effective fintech support demands substantial staff commitment (Buckley et al., 2020: p. 78). Capacity building within regulatory institutions is essential to develop expertise in emerging technologies and digital finance operations.

Regional collaboration should be prioritized, leveraging successful initiatives in neighbouring countries whilst adapting approaches to Kuwait’s specific market characteristics and Islamic finance requirements. The importance of Islamic finance compatibility cannot be overstated in Kuwait’s context, where Sharia compliance represents not merely a regulatory requirement but a fundamental market expectation. Kuwait’s fintech regulatory framework must incorporate dedicated provisions for Islamic fintech products, including digital sukuk platforms, Sharia-compliant peer-to-peer lending, and Islamic robo-advisory services. This requires establishing a Sharia supervisory framework within the innovation hub, ensuring that fintech innovations align with Islamic principles such as the prohibition of *riba* (interest), *gharar* (excessive uncertainty), and *maysir* (gambling). The framework should also facilitate the development of profit-and-loss sharing models adapted for digital platforms, enable transparent zakat calculation and distribution mechanisms, and support the creation of halal investment screening tools. By

prioritizing Islamic finance requirements, Kuwait can differentiate its fintech ecosystem whilst serving the broader Muslim market, estimated at 1.8 billion consumers globally seeking Sharia-compliant financial services.

Consumer education initiatives must address the awareness gap, where only 33% of consumers understand fintech despite high digital literacy (Rabaa'i, 2022: pp. 16-17). The framework should also recognize what Walker (2023: pp. 300-301) identifies as "Essential Legal Interests and Target Entitlements" (ELITE)—rights and protections that cannot be removed through technological automation. This ensures that whilst embracing innovation, certain consumer protection and financial stability measures remain non-negotiable components of the regulatory framework.

## 7. Conclusion

This paper has examined Kuwait's fintech regulatory challenges through comparative analysis with successful models in the United Kingdom and Saudi Arabia, revealing critical insights for regulatory development in emerging fintech markets. The research demonstrates that whilst regulatory sandboxes have gained global popularity as innovation facilitation mechanisms, they function most effectively as part of a comprehensive regulatory ecosystem anchored by innovation hubs that provide continuous, scalable support to the broader fintech community. Kuwait's fintech sector faces four fundamental regulatory challenges: constraints arising from traditional banking-focused frameworks, absence of dedicated fintech regulations, inadequate balance between innovation and stability, and insufficient cybersecurity protections. These challenges have resulted in limited market development despite favourable conditions, including high mobile penetration and digital literacy rates. The disconnect between technological capability and fintech utilization highlights how regulatory frameworks can create market inefficiencies, preventing willing consumers from accessing innovative financial services.

The comparative analysis reveals that successful fintech regulation requires adaptive governance frameworks capable of matching technological innovation speed whilst maintaining essential protections. The UK's outcomes-based approach and Saudi Arabia's comprehensive ecosystem support provide valuable models, though Kuwait must adapt these approaches to its specific market characteristics and regional context, particularly regarding Islamic finance requirements.

The theoretical contribution of this research lies in demonstrating how traditional regulatory theories must be reconceptualized for digital finance contexts. Disruptive Innovation Theory illuminates how regulatory frameworks can either facilitate or impede transformative potential, whilst Public Interest Theory highlights the delicate balance required between consumer protection and innovation facilitation. Walker's (2023) concepts of regulatory lag and adaptive governance provide crucial insights for understanding the dynamic relationship between technology and regulation.

Practically, the research suggests that Kuwait should prioritize establishing a

comprehensive innovation hub as the foundation of a broader regulatory ecosystem that can subsequently incorporate sandbox elements for specific use cases. This hub should provide ongoing regulatory guidance, facilitate stakeholder collaboration, and support market development initiatives whilst addressing consumer concerns about security and privacy that currently constrain adoption.

Future research should examine the practical implementation of innovation hubs in similar emerging markets, investigating how cultural, economic, and institutional factors influence their effectiveness. Additionally, longitudinal studies tracking the developmental impact of different regulatory approaches would provide valuable empirical evidence for optimizing fintech regulatory design.

The transformation of Kuwait's fintech regulatory framework represents not merely a technical adjustment but a fundamental reimagining of how financial innovation can be fostered whilst maintaining market integrity. As global financial systems increasingly embrace digital transformation, Kuwait's ability to develop effective regulatory frameworks will determine its competitiveness in the emerging digital economy. The evidence strongly suggests that comprehensive innovation support mechanisms, implemented as part of an integrated regulatory strategy that can include sandbox elements, provide the most promising path toward sustainable fintech ecosystem development.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

## References

- Abdeljawad, I., Hashem, S. Q., & Rashid, M. (2022). Fintech and Islamic Financial Institutions: Applications and Challenges. In M. Kabir Hassan, *et al.* (Eds.), *FinTech in Islamic Financial Institutions: Scope, Challenges, and Implications in Islamic Finance* (pp. 193-222). Springer International Publishing. [https://doi.org/10.1007/978-3-031-14941-2\\_10](https://doi.org/10.1007/978-3-031-14941-2_10)
- Agarwal, S., & Zhang, J. (2020). Fintech, Lending and Payment Innovation: A Review. *Asia-Pacific Journal of Financial Studies*, 49, 353-367. <https://doi.org/10.1111/ajfs.12294>
- Allen, F. (2021). *Globalization of Finance and Fintech in the MENA Region*. Economic Research Forum (ERF).
- Alsmadi, A. A., Alrawashdeh, N., Al-Gasaymeh, A., Al-Malahmeh, H., & Moh'd Al\_hazimeh, A. (2023). Impact of Business Enablers on Banking Performance: A Moderating Role of Fintech. *Banks and Bank Systems*, 18, 14-25. [https://doi.org/10.21511/bbs.18\(1\).2023.02](https://doi.org/10.21511/bbs.18(1).2023.02)
- Aysan, A. F. F., Lemine, A. S., & Kayani, U. (2024). Kingdom of Fintech: Crowdfunding Shaping the Future in the Kingdom of Saudi Arabia. *Journal of Science and Technology Policy Management*. <https://doi.org/10.1108/jstpm-05-2023-0066>
- Banerjee, A. (2020). Fintech Revolution in the Gulf Countries and MENA Region. In D. Klonowski (Ed.), *Entrepreneurial Finance in Emerging Markets: Exploring Tools, Techniques, and Innovative Technologies* (pp. 335-344). Springer International Publishing. [https://doi.org/10.1007/978-3-030-46220-8\\_21](https://doi.org/10.1007/978-3-030-46220-8_21)
- Buckley, R. P., Arner, D. W., Veidt, R., & Zetsche, D. A. (2020). Building Fintech Ecosystems: Regulatory Sandboxes, Innovation Hubs and Beyond. *Washington University Journal of Law & Policy*, 61, 55-98. <https://doi.org/10.2139/ssrn.3455872>

- Choi, D., Chung, C. Y., Seyha, T., & Young, J. (2020). Factors Affecting Organizations' Resistance to the Adoption of Blockchain Technology in Supply Networks. *Sustainability*, 12, Article No. 8882. <https://doi.org/10.3390/su12218882>
- Christensen, C. M., McDonald, R., Altman, E. J., & Palmer, J. E. (2018). Disruptive Innovation: An Intellectual History and Directions for Future Research. *Journal of Management Studies*, 55, 1043-1078. <https://doi.org/10.1111/joms.12349>
- Cumming, D., Johan, S., & Reardon, R. (2023). Global Fintech Trends and Their Impact on International Business: A Review. *Multinational Business Review*, 31, 413-436. <https://doi.org/10.1108/mbr-05-2023-0077>
- Fahy, L. A. (2022). Fostering Regulator-Innovator Collaboration at the Frontline: A Case Study of Theuk's Regulatory Sandbox for Fintech. *Law & Policy*, 44, 162-184. <https://doi.org/10.1111/lapo.12184>
- Fáykiss, P., Papp, D., Sajtos, P., & Törös, Á. (2018). Regulatory Tools to Encourage Fintech Innovations: The Innovation Hub and Regulatory Sandbox in International Practice. *Hitelintézet Szemle*, 17, 43-67. <https://doi.org/10.25201/fer.17.2.4367>
- Goo, J. J., & Heo, J. (2020). The Impact of the Regulatory Sandbox on the Fintech Industry, with a Discussion on the Relation between Regulatory Sandboxes and Open Innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, 6, Article No. 43. <https://doi.org/10.3390/joitmc6020043>
- Gulrez, T. (2021). Strategic Assessment of Islamic Fintech in GCC Countries. In N. Alam, & S. N. Ali (Eds.), *Fintech, Digital Currency and the Future of Islamic Finance: Strategic, Regulatory and Adoption Issues in the Gulf Cooperation Council* (pp. 223-241). Springer International Publishing. [https://doi.org/10.1007/978-3-030-49248-9\\_12](https://doi.org/10.1007/978-3-030-49248-9_12)
- Khan, H. H., Khan, S., & Ghafoor, A. (2023). Fintech Adoption, the Regulatory Environment and Bank Stability: An Empirical Investigation from GCC Economies. *Borsa Istanbul Review*, 23, 1263-1281. <https://doi.org/10.1016/j.bir.2023.10.010>
- Livingstone, S., Lunt, P., & Miller, L. (2007). Citizens, Consumers and the Citizen-Consumer: Articulating the Citizen Interest in Media and Communications Regulation. *Discourse & Communication*, 1, 63-89. <https://doi.org/10.1177/1750481307071985>
- Manda, V. K., & Eskhita, R. (2019). Should Islamic Banking & Financial Institutions Go with General Data Protection Regulation Compliance? *International Journal of Islamic Economics and Finance*, 2, 109-130. <https://doi.org/10.18196/ijief.2117>
- Mohamed, A. K. A. (2023). The Sandbox in Saudi Arabia: A Regulatory Approach and Applications. In N. Naifar, & A. Elsayed (Eds.), *Green Finance Instruments, FinTech, and Investment Strategies: Sustainable Portfolio Management in the Post-COVID Era* (pp. 191-210). Springer International Publishing. [https://doi.org/10.1007/978-3-031-29031-2\\_8](https://doi.org/10.1007/978-3-031-29031-2_8)
- Rabaa'i, A. A. (2022). FinTech in Kuwait: A Survey Study. *International Journal of Business Information Systems*, 10, 1-30.
- Rabaa'i, A. A. (2023). An Investigation into the Acceptance of Mobile Wallets in the Fintech Era: An Empirical Study from Kuwait. *International Journal of Business Information Systems*, 44, 536-580. <https://doi.org/10.1504/ijbis.2023.135350>
- Ringe, W. G., & Ruof, C. (2020). Regulating Fintech in the EU: The Case for a Guided Sandbox. *European Journal of Risk Regulation*, 11, 604-629. <https://doi.org/10.1017/err.2020.8>
- Sanyaolu, T. O., Adeleke, A. G., Azubuko, C. F., & Osundare, O. S. (2024). Exploring Fintech Innovations and Their Potential to Transform the Future of Financial Services and Banking. *International Journal of Scholarly Research in Science and Technology*, 5, 54-72. <https://doi.org/10.56781/ijrst.2024.5.1.0033>

- Walker, G. A. (2023). Money and Financial Technology (FinTech) History. *International Lawyer*, 56, 227-312.
- Zalan, T., & Toufaily, E. (2017). The Promise of Fintech in Emerging Markets: Not as Disruptive. *Contemporary Economics*, 11, 415-430.