International Association of Deposit Insurers

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FINTECH BRIEF

ISLAMIC FINTECH
NASCENT AND ON THE RISE

NO. 11

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ISLAMIC FINTECH: NASCENT AND ON THE RISE

Executive Summary

Islamic fintech has emerged as a niche sector within the broader development of Islamic finance, and can be defined as "technologically enabled financial innovation that could result in new business models, applications, processes or products with an associated material effect on financial markets, institutions, and the provision of Islamic financial services with observation of Shariah requirements" (adapted from the Financial Stability Board's definition of fintech).

The prospects for Islamic fintech are encouraging. Several reasons stand out, including the propitious demographics of a young and digitally savvy global Muslim population, potential contribution of digital Islamic social finance towards poverty alleviation, and increasing consumer demand for ethical financial products and services. Globally, more than 200 companies are involved in Islamic fintech, primarily from Asia, the Middle East and Europe.

By a measure of collective activity among the Organisation of Islamic Cooperation's (OIC) 57 member countries, Islamic fintech is nascent. At USD 49 billion, its size translates into 0.7% of the total global fintech transaction volume in 2020. However, this is expected to grow to USD 128 billion by 2025 (CAGR: 21%). Meanwhile, a global composite index assessed the Islamic fintech ecosystems of various countries. Jurisdictions from Southeast Asia (Malaysia, Indonesia), the Middle East (Saudi Arabia, the United Arab Emirates), and the United Kingdom were found to have the most favourable conditions.

In Malaysia, Islamic finance is a key priority sector. Islamic banking has grown significantly and Malaysia is actively involved in the international issuance of Islamic bonds (Sukuk). In terms of Islamic fintech, technology firms as well as incumbent Islamic commercial banks are involved in providing Islamic digital financial services. Several factors have contributed to the growth of Islamic fintech in Malaysia. These include digital readiness (IT infrastructure, online and mobile banking penetration), clear regulatory arrangements, focused government support for development of the Islamic digital economy, as well as an established Islamic financial community.

Emerging opportunities for Islamic fintech in Malaysia are to enable social finance and close financial inclusion gaps. On the other hand, the industry is confronted with key challenges. These include the lack of start-up funding, an inadequate local talent pool, low levels of financial and digital literacy among specific segments of society, and the need for more collaboration between incumbent Islamic banks and fintech companies.

For Islamic deposit insurers and resolution authorities, Islamic fintech can help by improving operational efficiency and effectiveness in areas such as the management of Islamic deposit insurance funds, identification of Shariah non-compliance risks for better governance, reimbursement of Islamic deposits, and enhancing resolution processes for Islamic banks. For the broader Islamic financial industry, Islamic fintech is used among others, to support products such as Shariah compliant e-money, and the business of Islamic digital banking. This is essential to provide Islamic depositors and financial consumers with the assurance and availability of end-to-end Shariah compliant digital financial products and services, that meet their expectations concerning religious laws and ethical standards.

In summary, this Fintech Brief seeks to raise awareness of Islamic fintech and in turn, foster its growth. The brief provides an overview of the global state of play, and explores Malaysia's experience in the regulation and development of Islamic fintech. It closes by highlighting potential uses of Islamic fintech for deposit insurance and bank resolution.

1 Background of Islamic fintech

1.1 Global perspective

The State of the Global Islamic Economy Report 2020/21 forecasts that spending by Muslims would reach USD 2.4 trillion by 2024[1], with greater consumer willingness to pay for more ethical products. Islamic finance serves a population of 1.8 billion Muslims globally, as well as other financial consumers drawn to ethical finance. Additionally, with more than half of the global population aged under 34 being Muslim[2], there is greater propensity among this demographic to adopt Islamic digital financial services. Within this milieu and despite the COVID-19 pandemic, global assets of the Islamic financial industry rose by 14% to USD 3.37 trillion in 2020. By 2025, the Islamic financial industry is projected to reach a size of USD 4.94 trillion.[3]

In tandem with these developments, Islamic fintech has emerged as a niche sector. The size of the global Islamic fintech market – as measured by transaction volume of countries in the Organisation of Islamic Cooperation (OIC)[4] – was estimated to be USD 49 billion in 2020 and projected to reach USD 128 billion in 2025 (CAGR: 21%). In 2021, a Global Islamic Fintech (GIFT) Index was formed to identify and measure enabling factors for the development of Islamic fintech. The index covered 32 indicators across 5 categories, namely talent, regulation, infrastructure, market and ecosystem, and capital.[5] The most active jurisdictions in Islamic fintech by way of market size and according to the GIFT Index are depicted as follows:

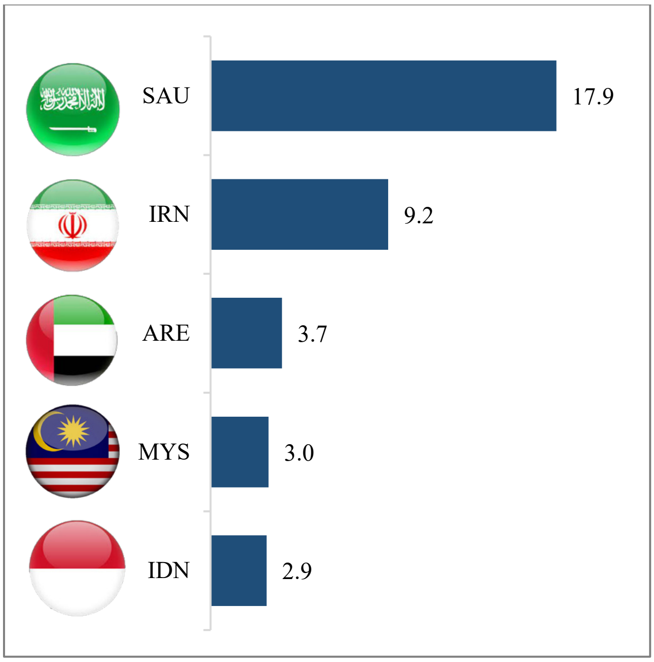

Figure 1: Top countries by market size of Islamic Fintech (USD billion)
Source: Dinar Standard and Elipses (2021)

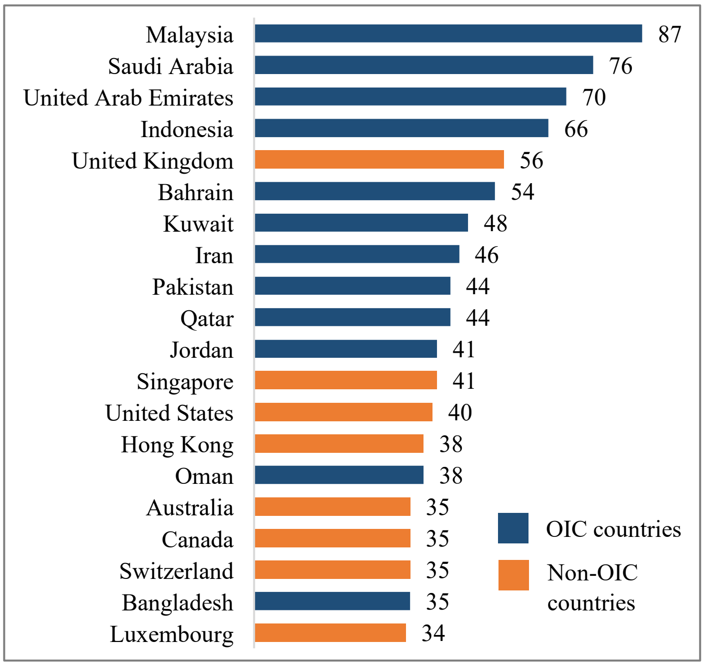

Figure 2: GIFT Index scores, top 20 OIC and non-OIC countries
Source: Dinar Standard and Elipses (2021)

[1] Dinar Standard and Salaam Gateway (2021)
[2] World Bank (2020)
[3] Refinitiv (2021), with an Islamic Finance Development Indicator (IFDI) based on statistics from 135 countries around the world. The IFDI report provides a barometer of the state of the global Islamic finance industry, measuring country scores across knowledge, governance, corporate social responsibility and awareness metrics.
[4] The OIC has a membership of 57 states spread over four continents.
[5] Dinar Standard and Elipses (2021)

In terms of regional distribution, as of April 2022, Islamic fintech companies were mostly from Asia (38%), the Middle East (25%), Europe (22%), Americas (10%) and others (5%).[6]

241 companies make up the global Islamic fintech services landscape.[7] Islamic fintech offerings extend across the familiar terrains of deposits and lending, payments, wealth management, alternative finance, insurance, trading and investment, and digital assets. However, one distinctive area is the use of Islamic fintech to accelerate the development of Islamic social finance. A holistic overview of the Islamic fintech framework, including customers, segments of services, operations, technologies, and ecosystem enablers, can be found in Appendix 1.

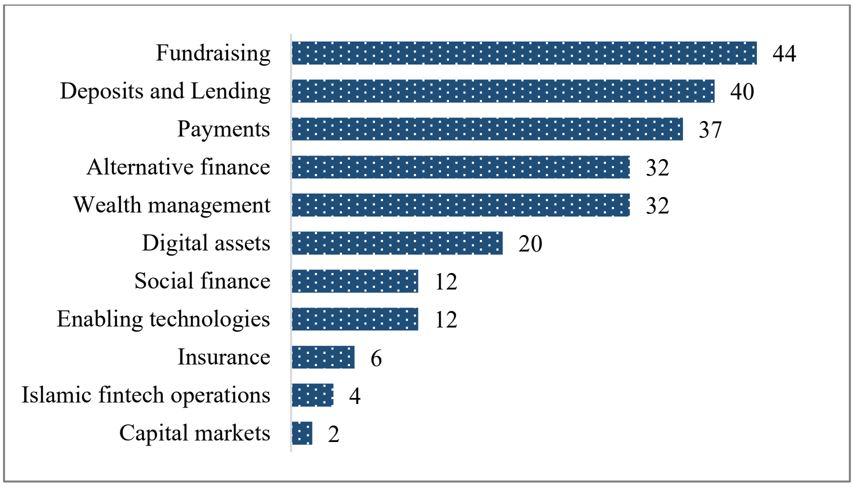

Figure 3: Global number and type of Islamic fintech companies
Source: Dinar Standard and Elipses (2021)

1.2 Islamic social finance

There is potential for Islamic fintech to enable the digitalisation of Islamic social finance through crowdfunding platforms and in turn, aid financial inclusion. Islamic social finance are modes of finance for social benefit that are rooted in Islamic ethics, which forms a core aspect of social obligations for Muslims. Another way of defining social finance is the mobilisation of philanthropic capital through financial structures or business models that deliver tangible social outcomes.

Islamic social finance is significant and could contribute towards alleviating global poverty. For instance, the almsgiving or *Zakat* pool is estimated to be worth USD 200 billion to USD 1 trillion annually[8], and endowment assets or *Waqf* are estimated at USD 84 billion in Indonesia and India.[9]

According to Islamic principles, individuals and businesses are required to share their wealth with the less fortunate through donations known as *Zakat*. Voluntary charity contributions are also encouraged, and these are termed as *Sadaqah*. As for Islamic religious endowments called *Waqf,* this is defined as a form of voluntary and irrevocable dedication of one's wealth or a portion of it (in cash or kind, such as a house). The funds are then disbursed for Shariah-compliant projects such as mosques, religious schools, and other social projects. Appendix 2 entails more information on the salient features and impact of Islamic social finance instruments.

1.3 Differences between Islamic and non-Islamic/conventional fintech

Similar to Islamic banking practices explained in IADI's Core Principles for Effective Islamic Deposit Insurance Systems (CPIDIS)[10], certain elements distinguish Islamic and conventional fintech. These are briefly explained to aid understanding of the context in which Islamic fintech operates.

[6] IFN Fintech (2022)
[7] Dinar Standard and Elipses (2021)
[8] Aamir and Francine (2018)
[9] World Bank and The Islamic Research and Training Institute (2016)
[10] IADI and Islamic Financial Services Board (2021)

Islamic finance involves the provision of financial services in accordance with Shariah Islamic law, principles and rules (Shariah is an Islamic canonical law that prescribes both religious and secular duties for Muslims).

To comply with Shariah requirements, Islamic fintech avoids prohibited elements such as interest-based (*riba*) transactions, excessive uncertainty (*gharar*), speculation (*qimar*), gambling (*maysir*), short sales and financing that is considered harmful to society. In addition, observance to underlying applications of Shariah contracts or concepts are required.

A central pillar of compliance is the establishment of a Shariah governance system. This is defined as a set of institutional and organisational arrangements through which an Islamic institution offering financial services ensures that there is effective independent oversight of Shariah compliance over relevant structures and processes, such as issuance and dissemination of pronouncements, reviews and audits.[11] An example of the implementation of Shariah governance for an Islamic deposit insurance system can be found in Appendix 3.

As a result of the above, financial products and services offered by Islamic fintechs or those developed by incumbent Islamic banks utilising fintech, can fundamentally differ from conventional ones. Examples are investment accounts (non-principal guaranteed deposits with unique features) and Islamic social finance instruments.

Therefore, ensuring compliance with Shariah governance requirements is crucial for the business and operations of firms involved in Islamic fintech and the provision of Islamic digital financial services.

2 Islamic fintech in Malaysia

2.1 Overview

2.1.1 Islamic finance

Islamic finance is a key priority and growth sector in Malaysia. In the area of banking, Islamic deposits, assets and financing now represent approximately a third of total market values. In particular, over the past decade, Islamic deposits have grown from 19% to 32% of total deposits. Malaysia also leads the global issuance of Islamic bonds (known as *Sukuk*), with a market share of 29.5% (as at 2020, total global *Sukuk* outstanding was $703 billion).[12]

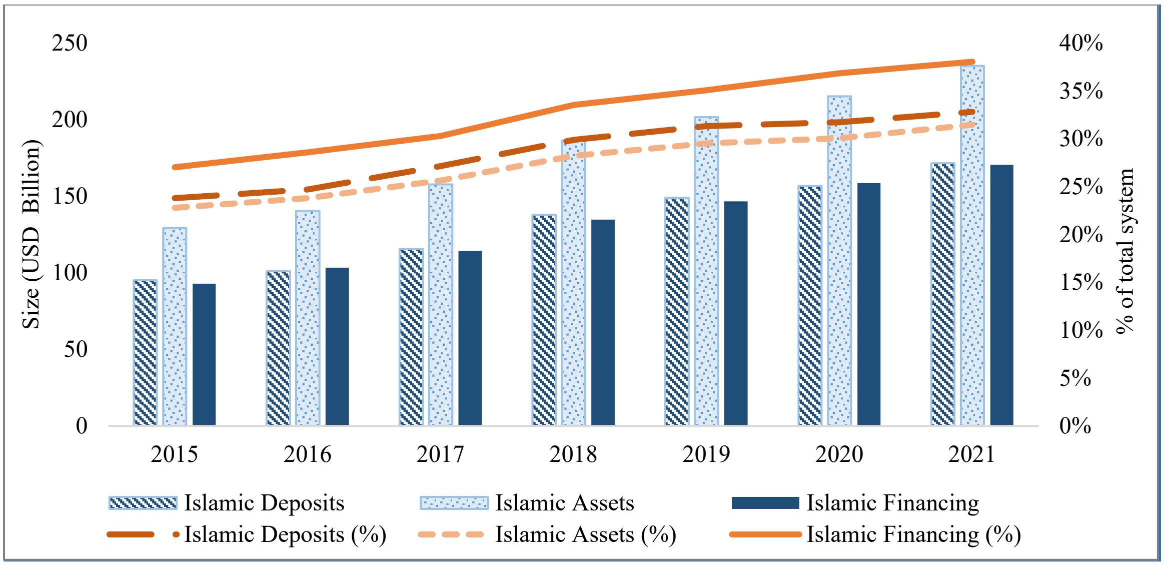

Figure 4: Growth of Islamic banking in Malaysia
Source: Bank Negara Malaysia (2022)

[11] Islamic Financial Services Board (IFSB) (2009)
[12] IFSB (2021). In addition, Malaysia was also the first jurisdiction globally to issue a green Sukuk. As at December 2021, the size of the Islamic capital market in Malaysia was USD 556.8 bil or 65.4% of the total capital market (Securities Commission Malaysia, 2022).

2.1.2 *Fintech and Islamic fintech*

The conducive digital environment in Malaysia has supported the growth of fintech and Islamic fintech. Digital consumers represent 88% of Malaysia's population[13], while online and mobile banking penetration rates to the population stood at 122% and 73% respectively.[14] In terms of digital readiness (measured across the pillars of technology, people, governance and impact), Malaysia is ranked 38th among 130 economies and second highest among upper-middle income countries.[15]

Fintech has been steadily growing in Malaysia amid greater adoption of e-payments (over a 5-year period to 2020, the transaction value of e-payments per capita increased by 25% to USD 168,000). In 2021, e-money transaction values grew to USD 11.9 billion or 3.2% of GDP (182% increase from 2019). Meanwhile, USD 649 million has been raised via peer to peer (P2P) financing and equity crowdfunding (ECF) as at December 2021 (113% increase from 2020).

No	Licensed financial institutions	No of institutions
1	Commercial banks	26
2	Islamic banks[a]	17
3	Investment banks	11
4	Development financial institutions (DFIs)[b]	6
5	Digital banks	3
6	Islamic digital banks	2
No	**Other fintech companies**	**No of institutions**
1	Conventional	278
2	Islamic	46

Table 1: Number of banking institutions and fintech companies in Malaysia
Source: Compilation by PIDM

Note: highlighted segments are key institutions involved in Islamic fintech activities.
[a] These Islamic banks operate as Islamic subsidiaries that are part of conventional domestic banking groups/ financial conglomerates, full-fledged / stand-alone Islamic banks, locally incorporated subsidiaries of foreign banks, Islamic banking windows (IBWs) or a branch office (for an International Islamic bank).
[b] Prescribed DFIs governed by the Development Financial Institutions Act 2002.

As highlighted in Table 1, there are two categories of institutions involved in Islamic fintech activities in Malaysia. The first group are incumbent Islamic banks and new Islamic digital banks. The second group is Islamic fintech companies.

2.1.3 *'Incumbent' Islamic commercial banks and new Islamic digital banks*

Islamic digital financial services are offered by the Islamic commercial banks in Malaysia. These banks could be potentially involved in Islamic fintech by way of technological applications that are developed in-house, or in strategic partnership with Islamic fintech firms. In recent years, Islamic banks have increased investments in digitalisation and fintech, covering areas such as product and infrastructure development.[16]

[13] MyDigital Corp (2021)
[14] Bank Negara Malaysia (2021)
[15] Portulans Institute (2021)
[16] International Monetary Fund (2020)

Recent examples of Islamic fintech products launched by several Islamic banks include an e-wallet based on the Shariah contract of agency or *wakalah*, a first all-digital Islamic account (online account opening and on-boarding), and provision of social finance instruments through crowdfunding platforms for charity and welfare projects.[17]

The arena and prospects of digital banking[18] is developing in Malaysia. In 2021, BNM received 29 submissions for up to five (5) digital banking licenses. Among others, the assessment criteria included financial inclusion objectives, i.e. the ability of new entrants to meet the needs of unserved and underserved target consumer segments. On 29 April 2022, BNM announced the successful applicants for five (5) licenses, including two (2) Islamic digital banks. The applicants will undergo a period of operational readiness that will be validated by BNM through an audit before they can commence operations (a period which may take between 12 to 24 months).

2.1.4 Islamic fintech companies

As at 2021, there were more than 290 fintech companies in Malaysia[19], comprising regulated and unlicensed firms. Unsurprisingly, the largest number of players were from the payments, e-wallets, and lending businesses.

According to a specific compilation of Islamic fintech service providers in Malaysia, there were 46 providers as at April 2022.[20] Depending on the nature of services offered, not all of these entities are regulated (refer Table 2 below). Examples of Islamic fintech service providers in Malaysia include those involved in Islamic social finance crowdfunding platforms (including the use of blockchain), platforms for Islamic equity crowdfunding and P2P financing, Shariah compliant Islamic payment gateways, Islamic financial services data analytics services, aggregators and an accelerator, as well as Islamic banking software providers for back-end technology utilised by financial institutions. Besides this, another offering is digital investment management services using robo-advisors for Shariah compliant portfolios.

2.2 Regulatory arrangements and developmental focus

The table in the next page provides an overview of the regulatory regime for fintech and Islamic fintech in Malaysia. For Islamic fintech activities, regulatory clarity is provided through rulings by Islamic experts via Shariah Advisory Councils. Additionally, there are concerted efforts to further develop the Islamic fintech ecosystem in Malaysia.

[17] MAE is an mobile banking and e-wallet app issued by Malayan Banking Berhad and its authorised manager, Maybank Islamic Berhad; MBSB Bank Berhad also offers a shariah-compliant e-wallet; CIMB Islamic Bank Berhad introduced an all-digital Islamic account using digital innovations for account opening and on-boarding; Sadaqa House is a charity crowdfunding platform where potential donors and charity projects meet at a common point facilitated by Bank Islam Malaysia Berhad; Jariah Fund (by Bank Muamalat Malaysia Berhad) is a crowdfunding platform for social welfare projects to help those in need and for the betterment of society through the application of fintech.

[18] Alternative terms for digital banks used by market participants and regulators are virtual banks, internet-only banks, neo banks, challenger banks and fintech banks (Financial Stability Institute, 2020)

[19] Fintech News Malaysia (2022)

[20] IFN Fintech (2022). The IFN Fintech landscape is an ongoing global initiative by IFN Fintech to identify and map out fintech firms offering Shariah compliant solutions.

Shariah Advisory Councils of the Central Bank of Malaysia (BNM) and Securities Commission Malaysia (SC) serve as authoritative bodies and issues binding rulings / pronouncements for Shariah matters on Islamic banking, insurance (takaful), Islamic finance, and Islamic capital markets

		Relevant authority/ laws[a] and guidelines	**Regulatory requirements**		
			Market access	**DI coverage**	**Selected features**
Conventional fintech companies	*Digital payments*	BNM / FSA, Guideline on E-money	Approval for issuer of designated payment instrument		
	E-money issuers (EMI)		Approval	Yes, pass-through approach	Framework for supervision is proportionate to the size, nature and complexity of e-money business[b]
	Digital banks	BNM / FSA, Licensing framework for digital banks	Licensing	Yes	Phased approach – simplified framework during foundational phase, e.g. asset size limitation, submission of exit plans
	Alternative finance - P2P, ECF	SC / CMSA, Capital Markets and Services Order 2019, Guidelines on recognised markets, Guidelines on digital assets	Registration of operators	No	Besides on-going obligations for Recognised Market Operators (RMOs), others are for ECF, P2P (e.g. fundraising and investment limits, trust accounts), and governance for digital asset exchanges
	Digital assets exchanges				
	Online moneylending	Ministry of Housing and Local Government, Online moneylending guidelines[c]	Licensing	No	Digital / electronic platforms and processes to facilitate provision of loans by licensed moneylenders
Islamic fintech	*Islamic EMIs, digital banks, alternative finance providers*	BNM, SC / IFSA, CMSA	Similar to conventional fintech		Shariah governance, e.g. Shariah advisor for EMIs[d]; Shariah expertise, minimum committee members and meetings[d]; Shariah advisor and Islamic product disclosures for RMOs; Shariah compliant trust account requirements for P2P operators
		Depending on the nature of activities, some Islamic fintechs are not licensed / regulated, e.g. those involved in: microfinancing platforms (but without deposit taking); zakat collection authorities; commodity trading/ investment platforms; fintech enablers; personal financial management			
	Islamic commercial banks (using fintech)	BNM / IFSA	Licensing	Yes	Shariah governance, e.g. role of Board, Shariah committee, senior management, control functions, Shariah compliance culture, transparency and disclosure[e]

The Malaysia Digital Economy Corporation (MDEC), a government agency, provides dedicated focus towards development of the Islamic digital economy in Malaysia, which includes driving the growth of Islamic fintech (in close collaboration with stakeholders including BNM)

[a] FSA: Financial Services Act 2013, IFSA: Islamic Financial Services Act 2013, CMSA: Capital Markets and Services Act 2007.
[b] Based on exposure draft issued by BNM in 2021.
[c] Ministry of Housing and Local Government (2020).
[d] Lower number of Shariah committee members and meetings (commensurate with operations and phased licensing approach) compared to incumbent Islamic banks.
[e] Based on Shariah governance policy document issued by BNM in 2019.

Table 2: Summary of arrangements for fintech and Islamic fintech in Malaysia
Source: Compilation by PIDM

2.2.1 Shariah Advisory Councils of Bank Negara Malaysia and the Securities Commission Malaysia

A unique feature of the regulatory architecture for Islamic finance in Malaysia is the role of the Shariah Advisory Councils (SAC) of BNM and the Securities Commission Malaysia (SC) in the governance of Islamic banking and Islamic capital markets respectively. Courts and arbitrators are required to refer to the SAC's binding rulings on Shariah matters relating to Islamic financial business in Malaysia, including for Islamic fintech. The councils are made up of prominent Shariah scholars, jurists and market practitioners with deep experience in banking, finance, economics, law and the application of Shariah in Islamic economics and finance. The SAC's binding rulings are essential to provide regulatory certainty of interpretations regarding Shariah matters on Islamic fintech, demonstrated as follows:

E-money as a Shariah compliant payment instrument

In 2020, the SAC of BNM decided that e-money is a permissible payment instrument under Shariah, provided that it is structured based on appropriate Shariah contracts to preserve the rights and obligations of the contracting parties. The ruling covers the applicable Shariah contract (agency or *wakalah*), and specifies that funds from users are to be placed in a Shariah compliant trust account or a dedicated deposit account under section 137 of the Islamic Financial Services Act 2013.

Trading of digital assets

In 2021, the SAC of SC resolved that the investment and trading of digital assets that are traded on digital asset exchanges registered with the SC are permissible. The resolution covered Shariah perspectives of recognising digital currency and tokens. The latter includes shariah compliance in the use of proceeds from the issuance of digital tokens, as well as the rights and benefits attached to the digital token.

Automated processing of commodity trading

In November 2019, the SAC of BNM issued a ruling which permitted the execution of tawarruq[21] via straight-through processing, subject to fulfilment of certain conditions relating to evidence, identification of assets, dual-agency requirements, and the ownership, documentation and rights of the purchaser to take delivery of the transacted assets.

2.2.2 Focused government support for strategic development of Islamic fintech

MDEC is Malaysia's lead government agency responsible for accelerating national digitalisation and transformation. It focuses on building skills, enabling businesses, and driving investments in the digital sector. As part of these aims, MDEC promotes the development of Malaysia's Islamic digital economy and more specifically, Islamic fintech.

This is achieved through collaborations with industry players, as well as regulators. For instance, MDEC partnered with fintech companies to improve digital financial inclusion by on-boarding new users through micro-financing, micro-insurance and micro-investment platforms. In 2020, a joint MDEC-BNM capacity booster program was also launched for fintech and Islamic fintech companies. Additionally, MDEC stakeholder dialogues bring together authorities, industry leaders and associations, academics, and others, to identify strategic opportunities and challenges for Islamic fintech. A session in 2020 mooted the formation of a national committee on Islamic fintech to better formulate and execute strategies.[22]

Besides MDEC, BNM also actively supports the market growth of Islamic fintech, as part of the broader fintech and Islamic finance ecosystems. BNM's recently launched blueprint on development priorities for the financial sector (2022-26) includes strategies to make the digital financial services landscape more vibrant.[23] These plans include enhancements to the regulatory sandbox framework (for digital innovations to test, scale and exit), strengthening networks for fintech start-ups to build capacity and gain market access, and leveraging national initiatives by MDEC and other new institutions such as the Malaysian Research Accelerator for Technology and Innovation. In addition, BNM is focused on advancing value-based intermediation (VBI), which aligns sustainable business practices and

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[21] A *tawarruq* is applied as a specific Shariah arrangement and consists of two sale and purchase contracts. The first involves the sale of an asset by a seller to a purchaser on a deferred basis. Subsequently, the purchaser of the first sale will sell the same asset to a third party on a cash and spot basis.

[22] MDEC (2019). MDEC Islamic Fintech Report – Featuring proceedings from MDEC Islamic Fintech Dialogue

[23] Bank Negara Malaysia (2022)

financing to Shariah outcomes.[24] A related strategic goal is to mainstream Islamic social finance in Malaysia over the coming years.

2.2.3 Key challenges and opportunities for Islamic fintech in Malaysia

While Malaysia has made good progress in Islamic finance and fintech, specific challenges need to be overcome to drive the continuing growth of Islamic fintech. These are summarised as follows:

- Lack of funding for start-ups through venture capital and private sector investments;
- Need for more local talent and technopreneurs. A relevant challenge is remuneration when competing at a regional level to attract talent;
- Emergence of new fintech business models and products that require greater regulatory clarity of Shariah concepts and structures;
- Lack of partnerships and engagement between incumbent Islamic financial institutions and smaller Islamic fintech companies;
- Low levels of financial and digital literacy among specific segments of society such as the low-income and micro, small and medium-sized enterprises (MSMEs) groups; and
- Lack of knowledge among certain stakeholder groups (religious authorities and Islamic social finance bodies) to embark on digital transformation.

At the same time, there is a key opportunity for Islamic fintech to help close gaps in financial inclusion (even though this level is relatively high in Malaysia at 96%[25], there are remaining gaps especially for digital financial inclusion.[26]). Appendix 2 illustrates how Islamic fintech contributes to the wider framework of social finance offerings in Malaysia. One opportunity is to apply blockchain technology to enhance the transparency of tracking investments (cash and tangible assets such as land and buildings) in Islamic endowment funds (*Waqf*).[27] More broadly, there is potential for Islamic fintechs to deliver digital infrastructure solutions to scale up social finance. For instance, leveraging Islamic fintech to overcome impediments such as high search and operational costs in managing social finance programmes, including real-time impact monitoring of beneficiaries.

To sum up, Islamic fintech in Malaysia is progressing well, aided by strategic and policy impetus from regulators and developmental agencies. Looking ahead, the future growth of Islamic fintech will continue to be supported by an enabling environment in Malaysia that is conducive for innovation in Islamic finance and the broader fintech industry.

3 Impact on Deposit Insurers (DIs), Depository Institutions / Islamic Banks, and Depositors

3.1 Impact on Islamic DIs and resolution authorities

Islamic fintech can be deployed to improve the operational efficiency and effectiveness of Islamic deposit insurance. Potential uses of Islamic fintech by DIs are briefly contemplated as follows, in the areas of Islamic fund management, Shariah governance, and the resolution of Islamic banks:

Islamic fund management:

Shariah robo-advisors could be used to manage Islamic Deposit Insurance Funds (IDIF). Such technologies have already been applied by Islamic financial institutions.[28] Ensuring the robo-advisor is shariah compliant requires risk controls across the life-cycle of the management of the IDIF from the development of parameters, to testing and implementation. For instance, technological screening methodologies could be used to avoid prohibited elements of investments in equities by IDIFs.

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[24] BNM has been actively promoting VBI - including collaboration with Islamic banks - since releasing a strategy paper in 2018. Moreover, BNM's financial sector blueprint 2022-2026 includes a strategic thrust on advancing value-based finance through Islamic finance leadership.
[25] BNM (2020). As at end-2019 based on percentage of adults with at least one type of regulated deposit account (Alliance for Financial Inclusion core set of financial inclusion indicators)
[26] Defined as the availability and equality of opportunities to access financial services through digital means (MDEC, 2020)
[27] IMF (2020)
[28] An example is by Wahed Invest, an online ethical investment platform and the world's first global robo-advisor operating among others in Malaysia, Dubai, U.S., UK and other countries.

Shariah governance:

- Islamic fintech could be used to strengthen the Shariah governance (risk management and audit functions) of Islamic DIs. An example is in the area of sources and uses of funds (CPIDIS 9). For DIs that operate an integrated deposit insurance system - i.e. maintaining separate funds for conventional and Islamic banks[29] - there are operational requirements to ensure Shariah compliant expenditure allocations. Islamic DIs could use artificial intelligence (AI) to identify shariah non-compliance risks in these and other areas such as investments in Shariah compliant instruments (highlighted above).
- The reimbursement of Islamic deposits (CPIDIS 15) may require the transfer of funds from the failed entity to deposit accounts with Islamic banks or other approved platforms (e.g. shariah compliant e-money at EMIs). To facilitate these transactions, Shariah compliant Islamic payment gateways could be considered.
- In terms of failure resolution (CPIDIS 14), Islamic fintech can help to identify any Shariah non-compliances by the troubled Islamic bank during the stage of early interventions when due diligence and preparatory examinations are being conducted. This can avoid potential negative impact of these risks on the valuation of assets, determination of potential losses, and viability of the failing bank. Additionally, the efficiency of resolution processes could be enhanced (e.g. obtaining digital consent of depositors for resolution actions).

Resolution of Islamic banks:

For the resolution of Islamic banks, there are specificities that need to be considered for resolution options[30] and depositor hierarchy in compliance with Shariah rules and principles. This is an emerging area of focus for relevant DIs and resolution authorities to consider paying more attention to, including insights from several upcoming publications, e.g. IADI's discussion paper on Shariah approaches on the resolution of Islamic banks, and the IFSB's technical note on recovery and resolution planning for institutions offering Islamic financial services.[31] Besides this, resolution authorities can draw lessons from the previous failures of Islamic financial institutions.[32]

While Islamic DIs stand to reap benefits from Islamic fintech, it is important to realise that such technologies may also increase the operational risk of DIs, particularly if applications are not deployed well or if there is over-reliance on fintech companies for the provision of specialised services. Moreover, the business case for investments in Islamic fintech would depend on the requirements and complexity of business models and operations of various Islamic DIs.

In conclusion, Islamic DIs would need to weigh the balance between the aim of improved outcomes for Shariah governance versus exposure to risks from the use of new technologies. This is essential since Shariah non-compliance could adversely impact the reputation of, and public confidence in Islamic deposit insurance systems.

3.2 Impact on Islamic banks

Similar to conventional banks, Islamic banks have harnessed fintech to improve operational efficiency, risk management, customer experience (CX), and financial inclusion through digital financial services. Such technologies include among others, AI, big data, blockchain, and cloud computing (e.g. use of AI for *tawarruq* / automated processing of commodity trading).

The differentiation for Islamic banks arises from utilisation of Islamic fintech to ensure compliance with Shariah requirements that govern the specialised nature of Islamic products, contracts and risk sharing models. In this regard, the growth of fintech has seen Islamic banks increase investments in digitalisation and technology (product and infrastructure development). While the use of Islamic fintech yields greater efficacy in Shariah-related operations, Islamic banks are equally exposed to the risks of Shariah non-compliance from use of new technologies and platforms. Islamic banks that offer digital financial services could also encounter 'digital bank runs' by Islamic depositors in the scenario of significant contraventions of Shariah obligations. However, these risks are mitigated by regulatory requirements on Shariah governance frameworks (refer Table 2 above).

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[29] PIDM adopts an integrated model - refer to Appendix 3 for more information on PIDM's Shariah governance framework. In addition, PIDM is empowered to transfer monies or assets between any of its funds subject to conditions as it may specify.
[30] This includes areas such as transfer or assets and liabilities, incentives offered by DIs, as well as the management and modification of assets.
[31] IFSB (2021).
[32] Examples include the collapse of Ihlas Finans in Turkey (2001) and Ar-Rayan in Egypt (1998) (The Middle East and North Africa 2004. Taylor and Francis Group (2003))

As Islamic fintech continues to develop, it will support the broader growth of Islamic alternative finance, digital payments, digital assets and other innovations to create more vibrant digital Islamic finance landscapes. While these segments are growing, at present, bank-led financing continues to remain prominent in the structure of many financial systems. Hence, the intermediation role and business of Islamic banks are not expected to be adversely impacted.

3.3 Impact on depositors

Islamic fintech is also important for financial consumers, including depositors. Beyond CX elements in digital offerings, Islamic fintech can strengthen the Shariah compliance of fintech companies and Islamic banks. In turn, Islamic financial consumers are assured that financial products meet their integral expectations of conformance to religious and ethical standards. The trust of Islamic consumers is an important foundation to build confidence for more innovation and growth of the Islamic finance industry. It is worthwhile noting that besides serving the Islamic community, Islamic finance also appeals to non-Muslim depositors. The value propositions for this latter consumer demographic include both ethical, as well as commercial considerations for adopting Islamic financial products and services.

In addition, new consumers can also be drawn in through digital platforms that offer Islamic financial services. For instance, digital Islamic social finance solutions are appealing to Muslim financial consumers and can be used to advance digital financial inclusion (e.g. to reach lower income groups or MSMEs) in Islamic jurisdictions.

4 Conclusion

Islamic fintech remains small relative to the size of the global fintech universe. Nevertheless, it is on the rise, serving a growing market of Muslim and ethical financial consumers across the world. In Malaysia, Islamic fintech is also nascent but concerted efforts by the government and industry players are well underway to accelerate the development of this niche sector. Going forward, there are increasing expectations for Islamic fintech to spur greater innovation and progress of Islamic digital financial services, and the broader Islamic digital economy in Malaysia.

At the same time, the growth of Islamic fintech also presents new opportunities for Islamic DIs and resolution authorities to explore technological solutions as well as corresponding risks, that on balance, would contribute towards stronger financial safety nets and more stable financial systems.

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6 Glossary

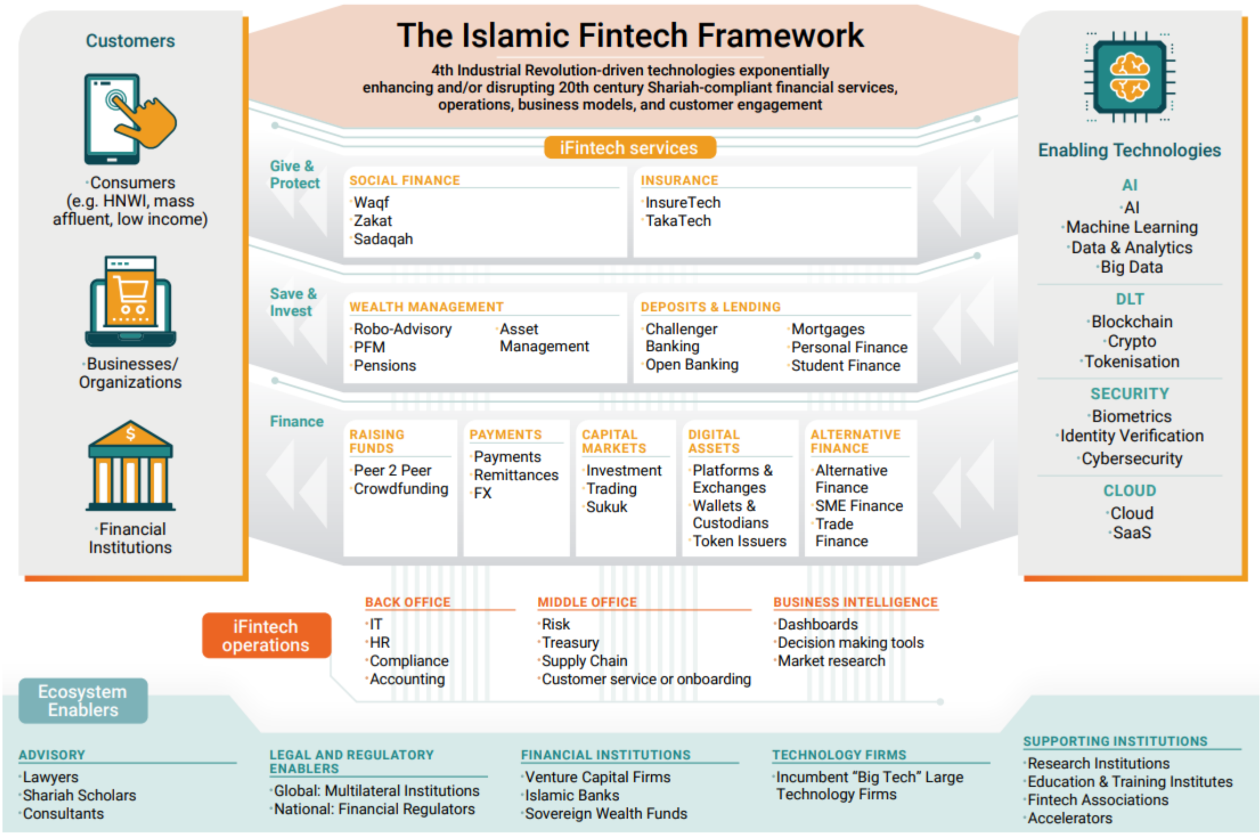
Integrated deposit insurance system	Islamic and conventional deposit insurance systems administered separately under a single deposit insurer.
Investment account	Refers to a funding product where Islamic banks accept these funds for investment purposes. The contracts normally used for this account are profit and loss sharing (*musharakah*), profit sharing and loss bearing (*muḍarabah*), and agency (*wakalah*). There are two forms of investment accounts: restricted and unrestricted accounts. In various jurisdictions, investment accounts are treated either as a liability, a partial liability or an investment product, depending on the prevailing legal framework. However, from the Shariah perspective, investment accounts should be treated as an investment product, and not as a liability.
Islamic bank	Includes full-fledged Islamic banks as well as separately established Islamic banking subsidiaries of conventional banks. It also includes Islamic banking windows subject to the country's legal framework and regulatory provisions.
Islamic Banking Windows (IBWs)	IBWs are part of a conventional financial institution (either a branch or a dedicated unit of that financial institution) which provide deposit-taking and financing/ investment services on principles that comply with Shariah.
Islamic finance	Islamic finance refers to the provision of financial services in accordance with Shariah Islamic law, principles and rules. Shariah does not permit receipt and payment of interest (*riba*), excessive uncertainty (*gharar*), gambling (*maysir*), short sales or financing activities that it considers harmful to society. Instead, the parties must share the risks and rewards of a business transaction and the transaction should have a real economic purpose without undue speculation, and not involve any exploitation of either party.
Islamic deposit	Product offered by Islamic banks to clients that entails a contractual obligation on the bank to repay either the full principal amount or part of it, as demanded by the clients from time to time, from their deposited funds with the bank.
Islamic deposit insurance	A system established with the Shariah-compliant design features to protect depositors against the loss of their insured Islamic deposits in the event that an Islamic bank is unable to meet its obligations to the depositors.
Islamic social enterprises	A relatively new concept in Islamic finance/ entrepreneurship. Unlike Islamic philanthropic organizations, Islamic social enterprises operate as for-profit businesses while achieving social justice goals and maintaining Shariah compliance rather than for purely charitable purposes. Due to the underlying business activities of *Waqf*, it could be viewed as an Islamic social enterprise.
Islamic social finance	Modes of finance that are rooted in Islamic ethics and intended for social benefit. These include *Zakat* (almsgiving), *Waqf* (endowments), *Sadaqa* (charity) as well as *Qard Hasan* (interest-free loans).
Pass through approach (e-money)	Whereby deposit insurance coverage "passes through" a custodial account at a depository institution that is a deposit insurance member and holds customer funds from Digital stored value products (DSPs), to the individual customer of the offeror (although this offeror is not a deposit insurance member). DSPs are financial products that allow consumers to store value in a digital format; this value can be added and drawn down by the owner of the funds and performs several of the functions of a deposit (payment, liquidity, value storage) regardless of the type of entity offering the product. These products are accessed through non-branch physical channels, which may include mobile phones, agents or

	correspondents, and digital transactional platforms. Products may include mobile money, card-based electronic money and internet-based electronic money, but do not include mobile banking, closed-loop stored-value gift cards, or virtual or crypto currencies.
Regulatory sandbox	A framework that allows for the experimentation of innovative FinTech solutions in a live market environment within specified parameters and timeframes.
Sadaqah	Intended to redeem the rights of the less privileged in society, *Sadaqat* is the plural of the term *sadaqah*, a derivative of the root meaning truthfulness and sincerity.
Shariah	Refers to the rulings deduced from legitimate Islamic sources: the Qur'an, Sunnah, consensus (*ijmā'*), analogy (*qiyās*) and other approved sources of the Sharīah rules that are applicable within the Sharīah compliance framework of the Islamic Deposit Insurance system of a jurisdiction.
Shariah compliant e-money	Refers to a designated Islamic payment instrument that is structured based on appropriate Shariah contracts, whether tangible or intangible, that stores funds electronically in exchange of funds paid to the issuer, and is able to be used as a means of making payment to any person other than the issuer.
Tawarruq	A *tawarruq* is applied as a specific Shariah arrangement and consists of two sale and purchase contracts. The first involves the sale of an asset by a seller to a purchaser on a deferred basis. Subsequently, the purchaser of the first sale will sell the same asset to a third party on a cash and spot basis.
Value-based intermediation	An intermediation function that aims to deliver the intended outcomes of Shariah through practices, conduct and offerings that generate positive and sustainable impact to the economy, community and environment, consistent with the shareholders' sustainable returns and long-term interests.
Wakalah	An agency contract where the customer (principal) appoints an institution as agent (wakīl) to carry out the business on his behalf. The contract can be with or without a fee.
Waqf	A trust established when the contributor endows the stream of income accruing to a property for a charitable purpose in perpetuity.
Zakat	One of the key pillars of Islam and is ordained to mobilize funds for the welfare of the poor.

Sources: IADI, CPIDIS, IMF, World Bank, UNDP, BNM, SC

7 Appendices

7.1 Appendix 1: The Islamic Fintech Framework

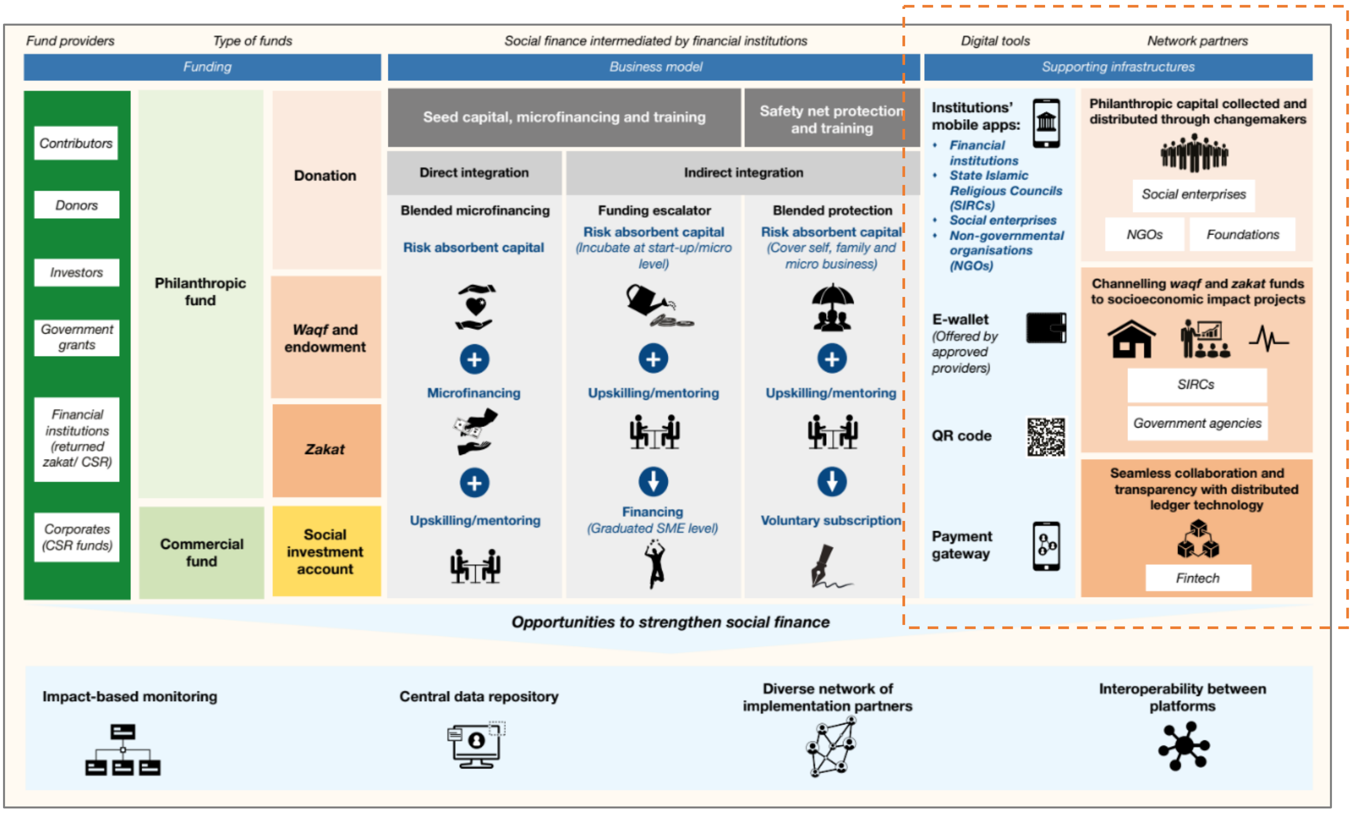


Source: Dinar Standard and Elipses (2021)

7.2 Appendix 2: Social finance instruments and characteristic of offerings in Malaysia

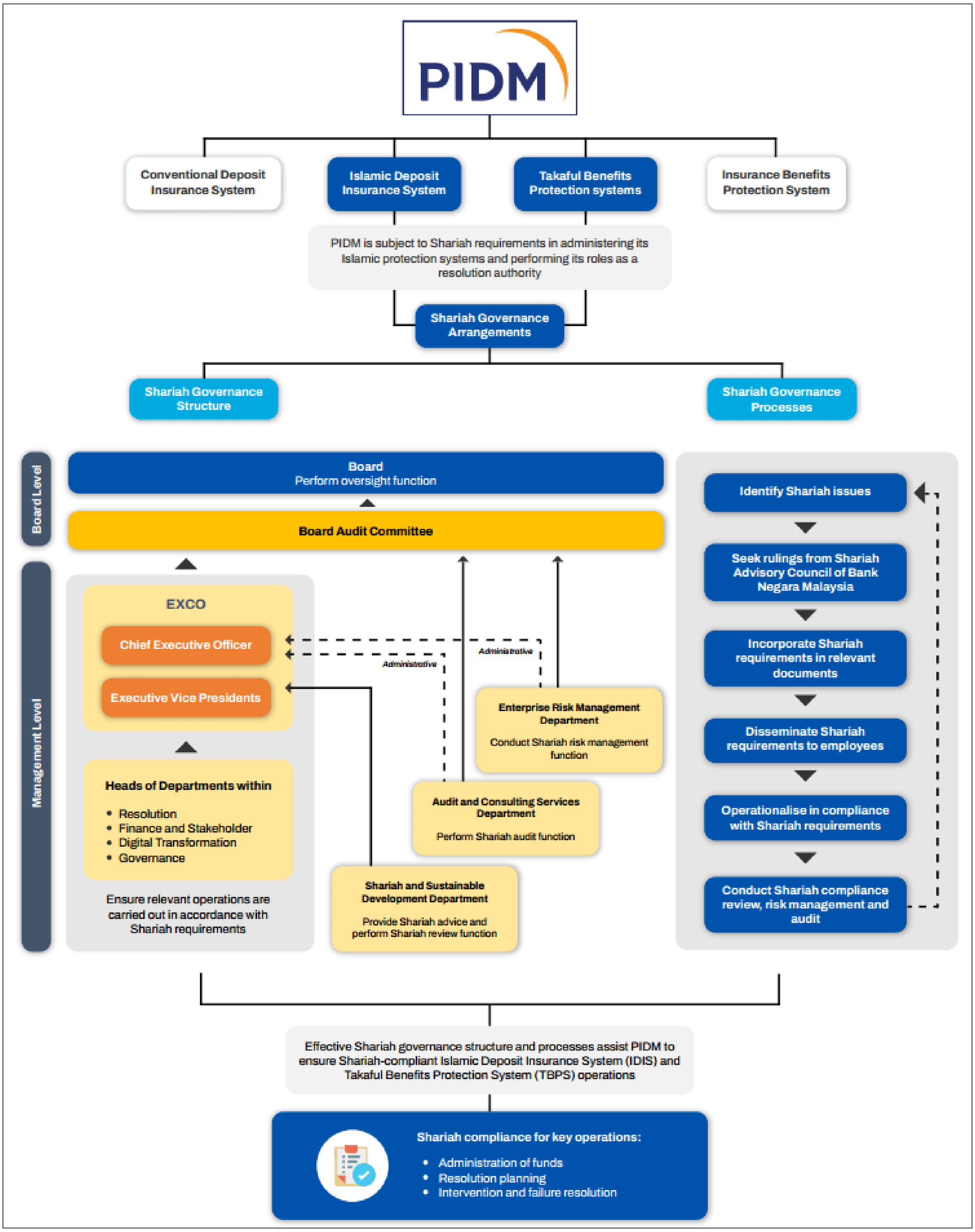
	Islamic Social Finance		
	Compulsory	Voluntary	
	Zakat	***Waqf***	***Sadaqah***
How is wealth to be shared with others?	Compulsory for Muslims owning excess wealth exceeding certain thresholds and owned over defined periods of time	Voluntary giving to a trust, for communal benefit or anyone specified in the trust deed	Voluntary acts of good deeds to help others
When do the donations occur?	Excess wealth is annually defined as per numerical benchmarks	Donations can be made anytime and for any amount. Principal must be maintained for perpetuity	Donations can be made anytime and for any amount. No requirement to maintain principal
Who is the beneficiary?	Must be given to anyone defined in 8 categories; needy, poor, slave, debtor, revert (people who embrace *Islam*), striving for the sake of *Allah*, traveler in the path of *Allah*, *zakat* collectors	*Waqf* can be made in favor of charitable institutions such as *waqf* for a mosque. It can also be made in favor of relatives, where the *waqf* goes to the poor or other charitable purposes when none of them are alive. The beneficiary purpose cannot involve any impermissible activities according to *Shari'a*	*Sadaqah* can be given to anyone for charitable purposes as long as it does not involve any impermissible activities according to *Shari'a*
What is being shared?	Cash and in-kind contributions, but the value must follow a certain formula	Assets with perpetual benefit	Anything as long as it is beneficial to the beneficiary
How large is the social impact?	Studies suggest proper collection and distribution of *Zakat* from domestic sources could eliminate extreme poverty (those who live below USD 1.25 per day) in 20 out of 39 OIC member countries	Examples from countries with some of the largest Muslim populations include Indonesia that has potential *Waqf* assets of USD 60 bil and India where *Waqf* properties have an estimated market value of USD 24 bil	Combination of *Zakat* and *Awqaf* (plural of *Waqf*)

Source: World Bank (2020)



Common characteristics of social finance offerings in Malaysia
Source: BNM (2022)

7.3 Appendix 3: Shariah Governance Framework in PIDM



Source: PIDM (2022)

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