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## Islamic Insurtech Conceptual Framework: A Proposal

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### Abstract

**Introduction:** Insurtech refers to the use of technology innovations designed to squeeze cost and maximize efficiency from the current insurance industry model. Insurtech is a combination of the word's "insurance" and "technology," inspired by the term fintech i.e. financial technology. Whilst insurance company already move forward, Islamic Insurtech seems not a popular terminology. It may not have unique characteristic from stakeholder's perspective and therefore it may only be embedded in insurtech definition.

**Purpose:** This paper aims to explore the potential of having Islamic insurtech in the global market and analyze the opportunity to establish a conceptual framework for Islamic Insurtech.

**Methodology:** This study uses qualitative approach based on analyzing content analysis. A report from government agencies and corporate include website propose subject of the study were review to developing insurtech framework for takaful. The review of relevant case studies from the literature reveals some important findings in relation to Islamic Insurtech such as future outlook, health protection, funeral insurance and management and the framework.

**Findings:** It is hoped that it will benefit the Islamic insurance or Takaful players to remain relevant in the global market.

**Paper Type:** General Review.

**Keywords:** Fintech; Insurtech; Islamic Finance; Islamic Insurtech; Takaful.



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## **INTRODUCTION**

It is believed that Industrial Revolution 4.0 (IR 4.0) will change the entire life of the human. For the financial industry, all traditional players (be it banking institutions, insurance companies, and capital market players) should ensure that they preparing for the changes that may impact the existing industry with newcomers from the fintech-based companies or new ventures that are more technology-driven with more innovative financial products (Rahman, 2014).

Financial Technology (Fintech) has widely known as part of the future related to IR 4.0. It is usually referred to a rise of internet of things, and the utilization of artificial intelligence, robotics, and networks that digitally connected and provides information of each other (Robinson & Verhage, 2018). IR 4.0 impacts not only on the financial industry but include education, manufacturing, construction and education. In the case of the financial industry, Fintech can disrupt the industry by offering products that can fulfil the customers' needs at the cheaper cost due to mass distribution of information. The obvious part of the Fintech is that the players can come from small ventures companies that have no financial services background, but with technology experts (Gassner & Lawrence, 2018).

In Malaysia, the Fintech's wave started past few years even it all begins more than 10 years back. An automated system, *monte carlo* simulation, analysis and others have been conducted in such a way for banking and investment. But it happened behind the scene. As if now, fintech has appear to the retail market as widely used for any transaction in any industry. In fact, fintech has tried to introduce more features that it couldn't work with the current conventional system.

In Malaysia, insurance and takaful has been part of financial related industry. Malaysia regulates insurance and takaful under the Financial related law i.e. IFA and IFSA even though global perspective is wider (Laldin & Furqani, 2018). Global position in insurance and technology known as insurtech and seems to differentiate themselves from fintech.

## **TAKAFUL CONCEPT**

Takaful is an Arabic word whose root is *ka fa la* (ك ف ل) (Billah, 1998). According to Ibn Faris, Takaful literally means combining something on something. Technically, it means commitment between both parties to ensure both of them guarantying each other in the matter which is known by both (Khan et al., 2020).

According to Bank Negara Malaysia (1984), Takaful connotes the mutuality or mutual responsibility of one party to another. Hence, Takaful Act 1984 (Malaysia) states that:

*"Takaful" means a scheme based on brotherhood, solidarity and mutual assistance which provides for mutual financial aid and assistance to the*

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*participants in case of need whereby the participants mutually agree to contribute for that purpose;*

Islamic Financial and Services Act (2013), Malaysia defines Takaful as:

*An arrangement based on mutual assistance under which takaful participants agree to contribute to a common fund providing for mutual financial benefits payable to the takaful participants or their beneficiaries on the occurrence of pre-agreed events.*

The above definition reflects the spirit of the literal meaning of kafala, which is based on mutual assistance and help (Maysami & Kwoon, 1999). In modern understanding, Takaful is a protection plan or scheme based on Shariah principles. By contributing a sum of money to a common Takaful fund in form of voluntary donation (tabarru'), individual or organization undertakes a contract to become one of the participants by agreeing to mutually help each other, should any of the participants suffer a defined loss (Laldin & Furqani, 2018).

Hence, Takaful is actually the insurance in substance guided by Islamic principles. Khan et al. (2020) said 'The term insurance, in its real sense, refers to community pooling, to alleviate the burden of individual, which might be ruinous to him. Since they share the same objectives, Takaful can be known as Islamic Insurance (Shanmugam et al., 2008; Thanasegaran, 2008). Takaful is a term used by several Islamic insurance companies as to differentiate the ways of conduct between conventional and Islamic insurance (Galal & Kabbashi, 2017).

As being cited in the literature, the concept, as well as the practice of Takaful in Islam, began as early as the time of Prophet PBUH. Based on the previous discussion, Takaful is a kind of social guarantee (*dhaman*) practiced by the people. It is claimed that the history of Takaful is related to the Arab custom recognized by the Prophet Muhammad PBUH (Khan et al., 2020). As narrated by Abu Hurairah:

*In the year of the Conquest of Mecca, the tribe of Khuza'a killed a man from the tribe of Bam Laith in revenge for a killed person belonging to them in the Pre-Islamic Period of Ignorance. So, Allah's Apostle got up saying, "Allah held back the (army having) elephants from Mecca, but He let His Apostle and the believers overpower the infidels (of Mecca). Beware! (Mecca is a sanctuary)! Verily! Fighting in Mecca was not permitted for anybody before me, nor will it be permitted for anybody after me; It was permitted for me only for a while (an hour or so) of that day. No doubt! It is at this moment a sanctuary; its thorny shrubs should not be uprooted; its trees should not be cut down; and its Luqata (fallen things) should not be picked up except by the one who would look for its owner. And if somebody is killed, his closest relative has the right to choose one of two things, i.e., either the Blood money or retaliation by having the killer killed." Then a man from Yemen, called Abu Shah, stood up and said, "Write that) for me, O Allah's Apostle!" Allah's Apostle said (to his companions), "Write that for Abu Shah." Then another man from Quraish got up, saying, "O Allah's Apostle! Except Al-*

*Idhkkhir (a special kind of grass) as we use it in our houses and for graves.” Allah’s Apostle said, “Except Al-idhkkir.” (Sahih Bukhari, 2005)*

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From this hadith, Prophet PBUH accepted the Arab practice in relation to mutual assistance in paying blood money (*diyyah*). Thus, this is also the evidence for the acceptance of paternal relatives (*'aqilah*) system in the time of Prophet PBUH.

### FINTECH EVOLUTION

Technology is not new for banking and financial industry. The usage of credit cards, debit cards, automated teller machines and online banking are examples for the usage of technology in the industry. While the seed of fintech is argued to be started since the 1950s (Desai, 2015), it is not so much discussed until 2008 (Robinson & Verhage, 2018). Its 4th Industrial Revolution driven technologies exponentially enhancing and/or disrupting 20th-century financial services, operations, business models, and customer engagement. The usage of technology is much more expanded with the help of the information and digital technology.

Fintech, as understood today, starts with the first of an expansion of open source, internet, mobile phones and search engines. The next wave was related to e-commerce, smartphones, and online banking. The digital technology moves us to the usage of smart banking, crowdfunding, peers to peers, big data, cryptocurrency and applications (Gassner and Lawrence, 2018). The 'internet of things' now moves people from the traditional financial transactions using cash to cashless transactions, which based on e-money and e-wallet. Applications (apps) are used widely to enable customers to do those transactions without face-to-face deals with the sellers (merchants). Smartphones, laptops, notebooks enable the transactions anywhere and anytime.

From another perspective, the trend opens the opportunity to the Fintech players to utilize the technology to understand the human behaviors from the big data and artificial intelligence and offer the products and services using the apps (Dapp, 2014). In other words, they can reach mass customers who are at different places and at the same time.

**Figure 1.** Flow of Fintech Development



Source: Dapp, (2014)

Smart contract is Programmable applications that, in financial transactions, can trigger financial flows or changes of ownership if

specific events occur. Some smart contracts are able to self-verify their own conditions and self-execute by releasing payments and/or carrying out others' instructions. Global consumer adoption rate for Fintech is about 64%, mainly because of the attractive rates and fees.

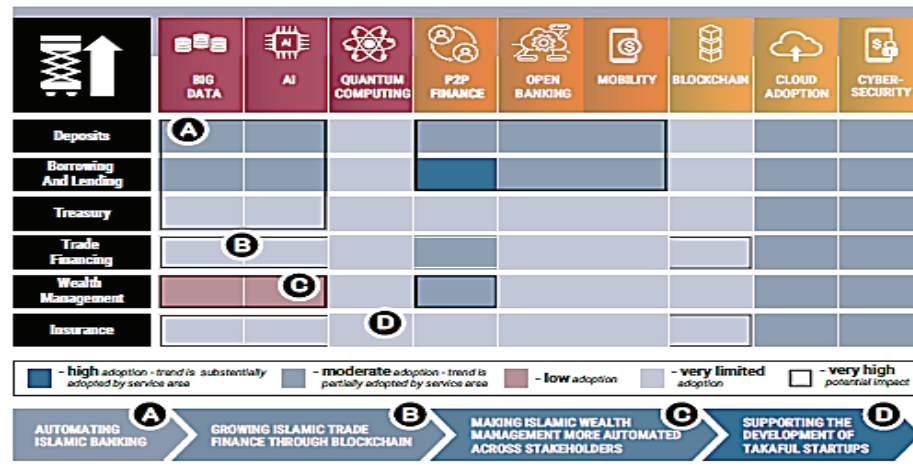
The fintech can compete with the traditional banking and financial institutions which yet borne by the huge staff, high numbers of branches, and high bureaucracy in terms of process and operations, and legal and regulations. The traditional institutions are bonded with high cost to maintain staff, branches and others, compared to the Fintech companies that have minimum staff and no branches. Paypal, TradeCrowd and FundedByMe are among the services providers for remittance and crowdfunding services without necessarily pass through the current process applied in the industry (Rabbani et al., 2020; Jamil & Seman, 2019). These companies are among the examples that show how IR 4.0 can surpass the brick and mortar of banking and capital market bureaucracy. Fintech companies can replace functions of banking institutions, insurance company as well as the capital market instruments and their way of delivery and distributions (Robinson & Verhage, 2018).

## ISLAMIC FINTECH DEVELOPMENT

While the Fintech already disrupts the conventional banking and finance industry, the technologies exponentially enhancing and disrupting 20th century Islamic financial services, operations, business models, and customer engagement. Similar to the conventional banking and financial industry, traditional Islamic banking and finance is exposed to competition by Fintech companies in the area of the deposit funding, borrowing and lending, treasury, trade financing, remittance and wealth management (Rabbani et al., 2020). For example, the robot advisor can replace the banca staff or financial analysts in giving the investment or banking products advice.

It is expected that there are 93 Fintech start up globally from countries such as Indonesia, US, UK, UAE, Malaysia and others. Among the Fintech start up are Beehive (Dubai), Kapital Boost (Singapore), Wahed Investment (US), Ethis Crowd (Indonesia) and Blossom Finance (Indonesia) (Gassner & Lawrence, 2018). These startups are focusing on the crowd funding and peers to peers financing. Based on the Fintech Report by Dubai Islamic Economy Development Centre (2018), deposits, borrowing and lending are among the services that highly utilize the Fintech. While treasury and insurance are the lowest among those industries that use the Fintech. **Figure 2** shows the gap and opportunity in Islamic Fintech ecosystem. Not all application suits with one industry, but it is interesting to note that the possibility of combination or hybrid application could happened in future. Since the principle of fintech is unlimited boundaries, we could expect more product, innovation and even application in the global market in the next ten years.

**Figure 2.** Gaps and Opportunities in the Islamic Fintech Ecosystem



Source: Dubai Islamic Economy Development Centre, (2018)

### INSURTECH DEVELOPMENT

Insurtech refers to the use of technology innovations designed to squeeze out savings and efficiency from the current insurance industry model. Insurtech is a combination of the words “insurance” and “technology,” inspired by the term fintech. Insurtech is exploring avenues that large insurance firms have less incentive to exploit, such as offering ultra-customized policies, social insurance, and using new streams of data from internet-enabled devices to dynamically price premiums according to observed behavior.

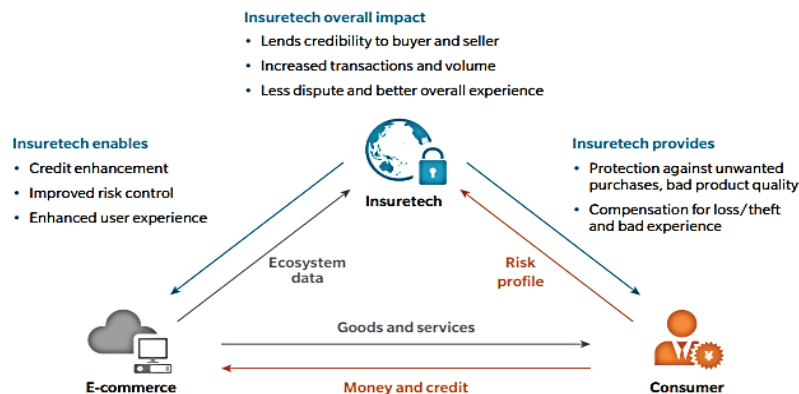
So far, the underlying insurance product remained more or less the same but has transformed to digital. The digitalization has seen the emergence of risk carriers that are changing the underlying insurance product and using insurtech to automate the value chain. By insurtech, the way it design could differ from the conventional design. Most of the tech to be deployed in the next phase is expected to be on value chain innovation, to reduce cost, improve efficiencies and generate ecosystems that can support future insurtech developments (KPMG, 2019). China has its own white paper on insurtech, making them the nation that has a clear mission and vision for insurtech. At the beginning, the focus on online distribution, technology-enabled upgrade and ecosystem-oriented innovation have boosted the market size for 29%, 47% and 76% in only five years (Wyman, 2016).

The latter stage focus on e-commerce support such as alleviates the worry by providing an additional level of guarantee to the consumer during the purchasing process, encourages purchases and consumption through the hassle-free return of goods, improves the user experience by lowering the frequency of disputes caused by unsatisfactory products



and providing better service. This can include the automatic pickup of products for return from high-rating clients, where ratings are based on analytics provided by the insurance company related to things like fraud detection and credit ratings. It is noted that the development of insurtech helps in supporting other commercial industry in many ways. **Figure 3** shows the relationship of insurtech with the e-commerce platform.

**Figure 3.** Impact of Insurtech in E-Commerce platform



Source: Wyman, (2016)

To be clear, the development of insurtech still at the beginning stage. It has an unlimited potential to grow, as long as it caters the right time and place to introduce it at a mass level. Hence, it is not too late to catch but needs more active participation in technology development.

## RESULTS AND DISCUSSION

### *Islamic Insurtech – Future Outlook*

Both Insurtech and Islamic Insurtech could share a similar definition, but the main point of departure is that Islamic ruling must be adopted in the latter. Conventional based on buying and selling insurance is prohibited by Shariah whilst Islamic insurance or Takaful using mutual based or corporation model among participants to establish their mutual protection. Therefore, the authors believe that it should be separated by nature. In addition, few circumstances and outlook for the insurance industry should be considered to the proposal of separation. The outlook is as follows.

#### **Health protection**

The model used by health insurance considered not sustainable especially those who are incapable of premium payment, plus the cost for premium getting increased time to time. The downside is riskier, as the healthcare cost shows a tremendous increase year by year. If this

trend continues, insurance seems to be exclusive for the financially capable group of people. Therefore, World Health Organization (WHO) for example, encourage the community-based health insurance (CBHI) schemes to be alternative insurance for lower-income level. Small voluntary CBHI schemes (*mutuelles de santé*) are generally characterized by the following institutional design features: (1) A scheme is a prepayment mechanism with pooling of health risks and of funds taking place at the level of the community or a group of people who share common characteristics (such as geographical or occupational). (2) Membership premiums are often a flat rate (community-rating) and are independent of individual health risks. (3) Entitlement to benefits is linked to making a contribution in most cases. (4) Affiliation is voluntary. (5) It operates on a non-profit basis.

One of its key strengths, as a community-owned model, is community ownership and involvement in the setup, governance and management of the scheme. Given CBHI's participatory decision-making and management structures, it is said to improve the transparency and accountability of the scheme. It also has the potential to enhance community empowerment and allow the voicing of community members' concerns and expectations in the management of local health systems. It can also build trust and encourage familiarity with the concept of insurance (WHO, 2010).

Evidence generally shows a positive impact on utilization rates following the introduction of CBHI for the CBHI members. Agnes et al. (2012), stated CBHI in Rwanda improves access to preventative and curative health services. Insured households are more sensitive to health issues, in the sense that they are more inclined to use bed nets and ensure safe drinking water. Despite a weak effect on health outcomes overall, the insurance scheme seems to have contributed to improvements in stunting and mortality, at the critical ages (before the age of two).

In Ethiopia, CBHI managed to empower women participation in the scheme. This shows the CBHI project created social impact. As of June 2016, CBHI in Ethiopia schemes is providing services to beneficiaries in a total of 181 districts, covering over 10 million people. CBHI scheme may reach a peak and fragmented. Hence, it must be parallel with a suitable effort to ensure its sustainability. The moral hazard issue could occur but for time being, CBHI proved its effectiveness to solve the basic needs of lower society. To make CBHI sustainable, the expansion of the fund needed to ensure it serves the purpose or otherwise, the scheme will collapse. Suitable investment with manageable risk is crucial and therefore need assistance from the expert.

For that reason, insurtech can play a big role to cater to such. Assessment of demography and calculation of risk could be done



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effectively using AI, Big Data analytics and any insurtech tools. However, the fundamental of insurance differs from the objective of CBHI. Lack of economies of scale with a high risk of claim lead to the ineffective cost and therefore not a sustainable business. At this juncture, Islamic insurtech can play that role as the fundamental of Islamic insurance/ Takaful with CBHI are similar. With mutual-corporation based scheme, Islamic insurtech can tap the unmet fundamental of conventional insurance.

### ***Funeral Insurance and Management***

Planning early ahead is important thing to avoid unnecessary thing in the future. Being prepare for death and make planning by taking a prepaid funeral plan is one of the preparations. According to Coden and Hirst (2015), there are various kinds of prepayment schemes for people who can afford instalments can reduce the eventual bills for relatives (and enable a person to plan their own funeral in advance of death). Surprisingly in their study found only a few people look ahead and make their own advance financial provision, for example in prepaid funeral plans or insurance policies, and some elderly people hope that monies left in their estate will cover costs. This gives burden and responsibility to family members or friends for making funeral arrangements.

Funeral expense has become one of the most interesting and serious topics in the ageing population. Funerals are expensive and costs have risen rapidly. It is expected to increase continuously and higher than the inflation rate. In United Kingdom, it is common to hear 'funeral poverty' as a cost of a funeral push thousands are now buried in pauper's graves or forced their families into debt (Royal London, 2015). Thus, there are more than 100,000 UK adults are in debt as a result of paying for a funeral.

There is a distinction between funeral insurance with other forms of insurances. Funeral insurance is not life insurance. Funeral insurance is a feature of 'death-triggered insurance', which the payout takes the form of funeral-related goods and service (Berg, 2011). It can serve as an inter-generational commitment device when the preferences if the covered individual (parent) differs from those of the beneficiary (child). The common between the funeral and life insurance is that the covered event is the death of a specific individual. However, for Muslim society funeral insurance is considered prohibited based on the majority of Islamic scholars and it should be avoided, thus the alternative is Islamic insurance or Takaful. Thus, the model in funeral insurance could be benefited as a reference (not to follow the principles but only looking for the model) in implementing funeral Islamic insurance/ takaful that can be offered to Muslim society and could help low-income society to cope with the funeral cost.

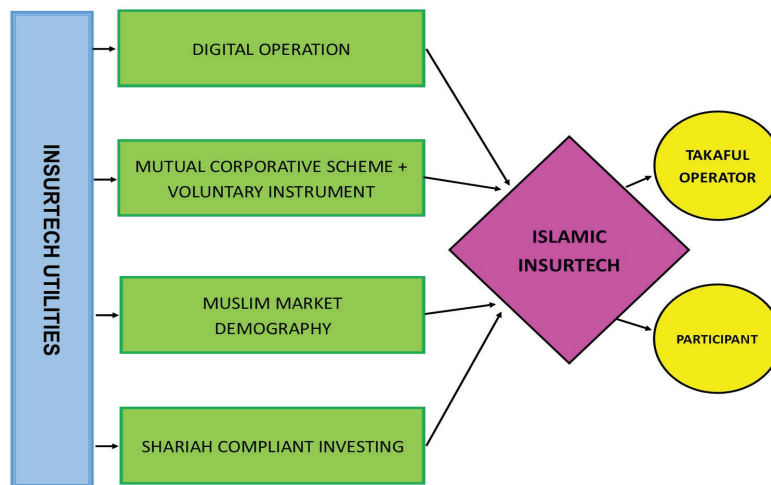
In Malaysia, community-based funeral takaful or known as khairat death fund has been established for centuries. It manages to retain the cost of funeral, avoiding the unexpected loss and properly manage the funeral (Mirza & Masrukhin, 2018). Since it is based on community, the features of khairat death fund are as follows: (1) Contribution and benefit for the scheme is based on the agreement between participants. (2) The participants appoint among themselves to manage the fund (normally the setup a proper organization). (3) Non-profit based, no investment even allowed. (4) Yearly surplus will be retained but deficit will trigger additional contribution payment.

For that reason, insurtech can play a big role to cater to such. Assessment of demography and calculation of risk could be done effectively using AI, Big Data analytics and any insurtech tools. However, the fundamental of conventional insurance does not fit to the practice of Muslim funeral. The ritual must be based on belief and therefore Islamic insurance or Takaful could be the basis of subscription. However, lack of economies of scale with a high risk of claim lead to the ineffective cost and therefore not a sustainable business. At this juncture, Islamic insurtech also can play that role as the fundamental of Islamic insurance or Takaful with funeral scheme is similar. With mutual-corporation based scheme, Islamic insurtech again can tap the unmet fundamental of conventional insurance. It is believed that many more community-based scheme are in the market but not popular from commercial values. It could be different from the objective of conventional insurance company, but suits with the spirit of Islamic insurance or Takaful.

### ***Islamic Insurtech Framework***

Based on the future development global of Islamic insurance or Takaful industry, it is possible to establish an Islamic Insurtech with these characteristics and concern. (1) Digital operation of Islamic insurance or Takaful. (2) Usage of Insurtech utilities: KYC/AML, CTF, AI, Blockchain and DLT, Cyber, Payments, Big Data & Machine Learning; to create a robust ecosystem. (3) Any Insurtech in a Muslim market demography that caters an unmet financial need and or financial inclusion objective. (4) Incorporation of the mutual-corporative based ecosystem with an additional voluntary instrument for sustainable purposes. (5) Any Shariah compliant Insurtech fund investing in digital infrastructure or economic development anywhere in the world. (6) Mass protection to safeguard humans needs regardless of income level. (7) Takaful operators provide services to community with fee-based (fixed value) income rather than profit-based (margin value). All these characteristics and concern could be organized to establish Islamic Insurtech framework as follow **Figure 4**.

**Figure 4:** Islamic Insurtech Conceptual Framework



Basically, the framework established based on the nature and utilities of insurtech as in its development. Therefore, it has to be the fundamental to establish Islamic insurtech. The unique characteristics of Islamic insurance/ Takaful as compared to conventional insurance must be cited as important variables that lead to Islamic insurtech. It has to be mutual-corporation based, specifically but limited to Muslim market demography, shariah-compliant investing, and maximizing the digitalization. Hence, it will benefit the main stakeholders of Islamic insurance/ Takaful industry namely Takaful operators and participants.

For Islamic insurance or takaful operators, their basis of income will be not dependent on margin value as in conventional. Fintech does not create for profit-margin but it focuses on volumes and economies of scale. Islamic insurtech cater a volume and economies of scale and therefore lowering the cost and charge. From consumer or participants of the scheme, they will enjoy lower contribution, more protection and efficiency benefit from the digitalization of operation.

## CONCLUSION

It is possible to enhance the insurtech roles and function to cater the Islamic insurance/ Takaful industry. Moreover, establishing own framework for Islamic insurance/ Takaful will give more opportunity for players to involved and invite public at mass to participate in Islamic insurance product. By having Islamic insurtech conceptual framework, it hopes that it will give guidance to develop more robust Islamic insurtech from many aspects i.e. operation, product, governance, compliance and even regulatory aspect.

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