

RICE ATMs:

TECHNOLOGY BASED INNOVATIONS FOR ENHANCEMENT OF ZAKAT

Where Are We Now in Integrating Zakat with Technology?



By Assoc Prof Dr
Aishath Muneeza,
INCEIF

In this February, it was announced that The Federal Territories Islamic Religious Department (Jawi) hopes to install 'rice ATM machines' at 85 mosques in the Federal Territory to facilitate its 23,000 asnaf or tithe recipients (Bernama, 2019). It is reported by Bernama (2019) that the cost of this machine is RM19,000 and is the first in the country and it has two functions, namely to give out rice supply in desired quantity and has a donation box to receive funds from the public. On February 15th, first rice ATM machine was installed at Al-Akram Mosque in Kampung Datuk Keramat.





The main purpose of the Rice ATMs is to provide assistance to recipients (asnaf/beneficiaries of zakat) who are registered as poor for zakat purpose to collect rice using a special card provided to them for this purpose. The modus operandi of these rice ATM's is that the user of the ATM machine must tap the special card they have for the purpose on the sensor of the machine and then the machine will dispense 2kgs of through the designated collection point in the machine which is located in the base of the machine. In this special rice ATM machine, those who wish to donate money for the purpose can also do so by depositing cash through a slot in the machine.

Though this is the first time Rice ATMs are used in Malaysia, rice ATMs were innovated for zakat purpose by National Board of Zakat, Badan Amil Zakat Nasional (BAZNAS), Indonesia and the machine was created by one of alumni of Bandung Technology Institute (Institut Teknologi Bandung or ITB). It was reported in the official website of BAZNAS on 17th January 2017 that the machine in Arthaloka building is a prototype of ATM machines which soon to be assembled in ten several location points in Jabodetabek, such as BAZNAS Office (Kebon Sirih Street No. 57 Jakarta) and nine mosques which are cooperated with BAZNAS. Each unit of ATM can store up to 230 litres rice capacity, which can fulfill the needs of 120 households.

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Then, each unit can be refilled eight times per month. It was also stated that the Rice ATM program is also in line with the BAZNAS support to continuing SDGs in order to eliminate the food shortages for poor people.

It is essential to understand the way how the Rice ATMs work. In Sindonews, it was stated that the BAZNAS rice, measuring 60 cm x 60 cm x 160 cm, shaped like a closet box and is very similar to a regular ATM machine and the rice ATM is equipped with electronic devices that hybrid network modem GSM/satellite as well as control and monitoring system based machine to machine (M2M) or Internet of Things (IOT). The machine can remove the rice in a certain amount automatically and the way it works is that the rice out by attaching the card Radio Frequency Identification (RFID) at the sensor card reader on the device. It was reported that each rice ATM unit has a storage capacity of 1,000 kg of rice to meet the needs for 1,000 recipients and each unit will be recharged as many as eight times in one month. The cost of manufacture and maintenance in a year to Rp30 million per unit and one-time transaction can draw rice from 1 kg and 2 kgs. Rice ATM cards are issued by the mosques.

The questions that might be asked are: why a rice ATM and why not just money? Or why is it placed in a mosque; rather than a shop or a bank or elsewhere? On 28th February 2019, Jakarta Post has reported that a mosque in North Jakarta provides rice machine for the poor and this program to provide rice ATMs began on 13th January 2019 where at least 33 urban poor had received four free liters of rice twice a week from the machine. It was reported that Barnas Sumantri, the head of the Jami Raudlatul Jannah Mosque's Welfare Council, said the rice ATM, which provides charity to the less fortunate living around the mosque, operates every Wednesday and Sunday. Barnas has explained the reason behind giving rice and the benefit of it as follows: "by giving rice [as charity], we can feed a whole family. If we give money, Rp 100,000 [US\$7] for example, it might only be enough for one or two persons".

It was also reported that the reason why Wednesday and Sunday is chosen is because these are the days the mosque conducts religious studies. As such, there is multiple benefits of choosing these days and Barnas has described these benefits as: "they can get multiple benefit. The pahala [reward], the knowledge and the rice.

The mosque had given special ATM cards to each of the beneficiaries and in order to get the rice, the cardholders only have to tap their cards on the machine and the rice flows into a container.

Zakat administration framework found in the countries of the world are not uniform and are unique following the general legal system of the country. For instance, in Malaysia, zakat administration in Malaysia is a State matter in particular relating to the passing of regulations and statutes. In Malaysia, the zakat management is different between states where only Pulau Pinang, Selangore and Sarawak have privatized their zakat management process while Kuala Lumpur Federal Territory, Negeri Sembilan, Melaka and Pahang are the states that only privatized the zakat collection while State Islamic Religious Council (SIRC) will handle the distribution process. The other states namely Kedah, Perlis, Sabah, Kelantan, Perak, Terengganu, Johor, Putrajaya and Labuan Federal Territory have not privatized either zakat collection or distribution where SIRC is the only institution manage the zakat totally (Hairrunizam & Radiah, 2010; p. 5). However, from shariah, the rulings on zakat need to be applied uniform across the jurisdictions. There are eight recipients of zakat derived from the primary source of Islamic law which is Quran and one of these categories are poor.

“Zakat is for the poor and the needy, and amil (those employed to administer the funds), for the muallaf (those who have embraced Islam),

for those in bondage and in debt, those who strive in the cause of Allah and for the wayfarer: (thus is it) ordained by Allah and Allah is full of knowledge and wisdom.”
(Surah At-Taubah: 60).

Zakat is the third pillar of Islam. Zakat is a socio-economic tool used to alleviate poverty and the effectiveness of zakat is known from the history. For instance, during the period of second Caliph of Islam, Umar Bin Khattab (R.A) and the time of Umer bin Abdul Aziz (R.A), it is reported that there is no poor in the society who wanted to receive zakat.

Many, in this contemporary time ask whether technology based innovations can be allowed to facilitate the fulfilment of religious duties or daily activities of humans. The general answer to this is technology is like any other thing found in the world which can be used for good or evil. For maslahah or public interest if the technology based innovation creates good and facilitate human being to achieve maqasid al shariah, there is no reason why technology based innovations like rice ATMs cannot be innovated to facilitate the poor to fulfill their basic need of satisfying hunger via zakat money and sadaqat money given.

Research is ongoing to integrate blockchain technology to zakat. It is reported that Dr Ziyaad Mahomed, Associate Dean of executive education and e-learning at the International Centre for Education in Islamic Finance (INCEIF), and his team have come up with an Islamic social financing app that leverages blockchain technology.

The modus operandi of this app has been summarized by Dr Ziyaad as follows according to the edge markets (2018): “How the app works is very simple. When users turn it on, they are presented with two options: sadaqat (charity) or zakat. If they choose zakat, the app prompts them to select the school of thought they follow — Shafie, Maliki, Hambali or Hanafi — as there are differences of opinion. Then, the app asks a few questions such as where they would like to see their money go. We provide them with a choice of projects such as water irrigation, sanitation, poverty eradication and education. After choosing the project, they complete their payment using a secure gateway. Specific projects are listed. And once the zakat payment has been made, it is registered on a node in the blockchain. Payers will receive confirmation of acceptance. Now, the project has their money. When the money has been fully utilised, the payers will be notified via the app. Thanks to the transparency provided by the blockchain, there is more confidence among payers that their zakat has reached the intended recipients.” This app was developed in partnership with Dublin-based financial technology (fintech) company AidTech and the International Federation of Red Cross and Red Crescent Societies.

It was supposed to be launched in the end of last year, but it is not launched yet. This technology based innovation promoted transparency in zakat and sadaqat boosting the confidence of contributors.

In May 2018, it was reported that by Indonesian based Blossom Finance that in Ramadan, Blossom Finance is offering a free service allowing Muslims to pay zakat owed against cryptocurrency holdings directly using the blockchain and these payments collected by Blossom will go towards orphans and widows in Sumatra and Central Java, Indonesia via Blossom's network of cooperatives and nonprofits. This service by Blossom is offered free of charge and no payment is charged for using the service. It is stated in the official website of Blossom that how this service works is Blossom will accept payments in cryptocurrency directly via the Blockchain to a Blossom controlled wallet held at a cryptocurrency exchange in Indonesia. Blossom then converts the cryptocurrency to Indonesian Rupiah, and deposits the amount into the bank accounts of their cooperative and nonprofit partners located in rural areas in Indonesia. How this works is summarized in the diagram below:



Source: Information extracted from the official website of Blossom

With regard to the issue of exchange fees it was stated that Blossom has consulted with their internal shariah advisory and they have been advised that exchange fees incurred when converting from cryptocurrency to local currency qualify as part of the total zakat payment. Bearing this in mind, it is stated that Blossom will try their best to trade the crypto in a way that incurs minimal or no fees. It is essential to note that Blossom Finance has published a working paper on the permissibility of Bitcoin and cryptocurrency and has concluded that bitcoin qualifies as Islamic money, except where banned by local government, but cautions investors against speculation, initial coin offerings (ICOs) and investment schemes. Blossom Finance helps institutions to raise cost-effective, Shariah-compliant financing from global investors using blockchain technology on its Smart Sukuk platform. Blossom was founded in 2014 to increase the availability of halal financial products using technology. Since 2015, Blossom has been helping microfinance institutions in Indonesia raise funds from international investors to fund micro-businesses aimed at reducing regional poverty.

The functions performed by humans are being replaced by machines and artificial intelligence is being utilized in the financial industry now. Another innovation we see is zakat chatbots powered with artificial intelligence technology replacing the officers who provide information about zakat and on the calculation of it. This could be described as an improvised version of the simple zakat calculators we use

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now. In this regard, in 2014, Afaf Al-Riyami, Asma Al-Harthy, Khadija Al-Amri, Kamla Ali Al-Busaidi from Sultan Qaboos University of Oman have presented in 15th European Conference on Knowledge Management, ECKM 2014 a research on zakat expert system (ES). They say that ES are a part of applied artificial intelligence and the idea of an ES is to convert knowledge from human expertise to a computerized system. The objective of their study is to apply expert system technology in the field of Zakat to assist Muslims in the decision making of identifying the rules of making Zakat and to assist in complex calculations. They state that the objective of the Zakat ES is to specifically help people calculate the amount of each type of Zakat they have to pay every year, the system helps users to: (1) determine if they are required to give Zakat, (2) determine the unique conditions, and the amount of each type of Zakat they have to pay every year. The system was developed based on a rules-based expert system shell. To develop such a system, information that is attained from a human expert is represented in the form of rules, such as IF-THEN. Then the rules are used to perform operations that lead into achieving certain goals.

It is stated that after reviewing the Zakat expert system, the majority of the 20 potential users also indicated that the system saves time and effort in searching for information related to Zakat's rules.

Users also indicated that it is very useful for calculating Zakat quickly and accurately, and is very beneficial, convenient, and easy to use for people who have no knowledge about Zakat. Other strengths of the system are that it is more convenient than going to human experts and provides a variety of Zakat types.



In 2017, Pahang Zakat Collection Center (PKZ) has also introduced a chatbot called ZakatChat. ZakatChat is an artificial intelligence based application provided by PKZ to smartphone users and visitors to PKZ's official website to interact and help answer questions about zakat property. It is stated in their official website that ZakatChat uses a specially programmed search engine technology to match questions asked with available databases. In addition, ZakatChat also guides users to obtain additional information from other mediums if the information is not available in the ZakatChat database.

In 2018, in collaboration with PT Artina Digitama Indonusa (Artdigi), the Baznas of Indonesia launched a Zakat Virtual Assistant Chatbot named "Zaki" for the first time in Indonesia. It was reported in a local newspaper of Indonesia, SWA that Zaki can be accessed on the LINE messenger application under the name @zakibaznas and in the

near future it will be available on the Facebook Messenger chat application and the community can calculate the amount of zakat accurately, literacy, and zakat education as well as information on Baznas social and humanitarian programs. Zaki's features that will be coming soon include maps of the nearest mosque location, prayer schedule reminders to da'wah material. With chatbot technology that is equipped with Natural Language Process, it allows this feature to be able to chat with users to analyze the wishes of the users. Apart from the chatbot, BAZNAS has developed an internal platform, for donation services through the BAZNAS website (baznas.go.id/zakatsekarang) and through the Muzaki Corner application service. An external platform, where the platform comes from BAZNAS partners who provide special space and options for the community to zakat through BAZNAS. Some of the examples for

this are the option of zakat and charity through kitabisa.com, [gojek](http://gojek.com), [bukalapak](http://bukalapak.com), [tokopedia](http://tokopedia.com), and others. Apart from this social media platform to facilitate direct donations through social media is made. National Zakat Index (IZN) is also introduced to measure zakat. BAZNAS has also a plan to introduce an electronic commerce platform to increase market access for mustahik products benefiting the productive zakat program.

Zakat information or data management also face challenges as information on zakat including the payers, distributors, receivers and other stakeholders need to be maintained and the volume of these data are growing day by day. Big data can resolve this. Big data can be described as a technology that enable to analyze, systematically extract information from, or otherwise deal with data sets that are too large or complex to be dealt with by traditional data-processing application software. In 2015, Hidayah Sulaiman, Zaihisma Che Cob and Nor'ashikin Ali has presented a paper in the International Conference on Software Engineering and Computer Systems (ICSECS) about Big data maturity model for Malaysian zakat institutions to embark on big data initiatives. They state that the main difficulty in handling large amount of data is due to the five big data concepts involving volume, velocity, variety, veracity and value which increases rapidly in comparison to the computing resources and zakat administrators are currently facing issues with the growing amount of data on zakat payers, zakat distribution and various zakat recipients. They state that

overwhelming amount of data must be carefully managed by the zakat institutions and the appointed zakat fund trustees as zakat data resides in massive, unstructured information, largely in various forms of numeric, text and imagery, there is a need for zakat institutions to switch to better data management mechanism. Their study proposes a big data maturity model to gauge the readiness of zakat institutions to embark into the big data evolution and the proposed model also provide the zakat institution with more structured processes of managing the high volume of data in order to provide better reporting transparency, making well-informed decisions and instill confidence and trust from the community on better zakat management and distribution.

From above, it is evident that in this era of technology and with industry 4.0 or fourth industrial revolution, utilization of technology is unavoidable and the public interest or *maslahah* vests in the use of it in all aspects of our lives. Financial technology or *finTech* has not only changed banking, *takaful* and capital market industry; but social finance industry has also been transformed by it. The discussion in this article illustrates the integration of technology with zakat. Definitely in future, it is anticipated that there will be on going initiatives to enhance zakat via technology.