



## OPTIMIZING ZAKAT DISTRIBUTION IN SELANGOR USING TECHNOLOGY

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### ABSTRACT

Zakat is the third pillar of Islam which is obligatory payment that shall be made by every eligible Muslim to the legal recipients of stated in Quran. Today, for zakat management, a number of institutions have been developed to ensure that that the zakat achieves its socio-economic objectives. The management of zakat encompasses collecting, organizing and distributing Zakat funds. This study aims to evaluate using the case of Selangor, the use of technology particularly for zakat distribution and to identify the technological opportunities in enhancing zakat distribution process. The study uses a qualitative approach, gathering primary data from a questionnaire survey distributed to the Asnaf communities in Selangor while the secondary data is gathered from sources like journal articles. The findings of this research reveal that the technological enhancements that are pertinent for zakat distribution are Artificial Intelligence (AI), Machine Learning (ML) and Financial Technology (FinTech). It is anticipated that the findings of this research will assist Lembaga Zakat Selangor in deploying technological enhancements in this regard.

**Keywords:** Artificial Intelligence, Asnaf, e-wallet, FinTech, Mobile Banking, Zakat Distribution

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### INTRODUCTION

As mentioned by Allah in Al-Quran;(At-Tawbah, 60), zakat means As-Sadaqat. Zakat is to purify or increase or grow, whereby a person's wealth can be purified and lead the wealth to grow and be increased physically and spiritually as paying zakat increases the barakah (blessing) of Allah (Muneeza & Nadwi, 2019). This act of generosity is to fulfil a religious obligation and to serve as a means of supporting those in need within the community.

Based on the rules set in the Al-Quran, there are eight groups of people who are entitled to receive zakat including Fuqara (poor), and Al-Masakin (the poor), those employed to collect fund (Amil), and for the attract the heart of those who have been inclined towards Islam, and to free the captives, and for those in debt, and for Allah's Cause (i.e. for Mujahidun) – those fighting in the holy wars) and for the wayfarer (a traveller who is cut off from everything); a duty imposed by Allah (At-Tawbah, 60).





Zakat is a powerful platform that helps to bridge the gap between the rich and the poor. It is imperative for Muslims to contribute to this noble cause, considering zakat's status as one of the five pillars of Islam. According to JAWHAR (2021), zakat is the practice of deducting a certain percentage from a person's assets for the benefit of Asnaf, as mandated by Allah.

Zakat management involves the process of collecting, organizing and distributing zakat funds. In the fast-evolving world, there is no denying that technology plays a pivotal role in enhancing the zakat management process. In addition, the implementation of technology has had a significant impact on the accountability of zakat management (Hadia, et al., 2024). The accountability of zakat management refers to the responsibility, transparency and integrity demonstrated by zakat institutions in administering zakat funds (Wahyuni-TD et al., 2021). Hence, adopting the technology could streamline and robust the zakat management process, indirectly strengthening the trustworthiness, accountability and integrity of the zakat institutions in managing zakat funds.

Today, the optimization of technology is not only for the financial industry but also for the private and public non-financial sectors. Zakat Institutions use online systems to collect and distribute funds more effectively. Technological intervention offers the chances to trace and observe the process of zakat collection and distribution. Besides, it could enhance the transparency of information, which eventually increases the performance of zakat institutions (Nuswantara, et al., 2018). Most zakat institutions currently use technology for zakat collection to modernise the process, improve efficiency and ensure secure and convenient collection (Marhanum & Chowdhury, 2020). However, the Muslim community, particularly zakat payers, have expressed concern about the channel and method of distribution (Hafizah et al., 2016). Therefore, there is still much that can be improved in the zakat distribution process by adopting technology.

Over the past five years of trend data (2018-2022), Selangor recorded the highest amount of zakat distribution followed by Wilayah Persekutuan Kuala Lumpur, Kelantan, Johor and other states in Malaysia. Zakat management in Selangor is organized by Lembaga Zakat Selangor. One of the Lembaga Zakat Selangor's goals is to increase the efficacy of zakat distribution technology, however, there is a lack of integrating technology into Zakat distribution in Selangor for example the information provided on its website regarding Zakat distribution is restricted only to the general information on the evaluation and application process, related forms to be downloaded, a listing of recipient criteria, listing of Asnaf Development Institutions and the features of Asnaf and Fakir's calculator (Lembaga Zakat Selangor, n.d.).

As such, the use of technology is important in simplifying the process of onboarding Asnaf instead of using the traditional way of submitting the forms over the counter, automate the filtering and screening process to determine the eligible Asnaf to avoid fraud and multiple choice of distributing zakat fund rather than using mobile banking, cash and cheque. Therefore, the objective of this study is to suggest how technology could optimise zakat distribution in Selangor. The overall structure of the study takes several components including the research problem, objectives, literature review, methodology, findings, discussion, conclusion and recommendation.

A study conducted by Marhanum & Chowdhury (2020) revealed that the zakat institutions in Malaysia were focused with zakat collection rather than developing an efficient zakat distribution system for the needy. In addition, technological intervention for the distribution of zakat is not in line with the collection process (Yahaya & Ahmad, 2019). According to Zainal et al., (2016), zakat collection in Malaysia has increased due to the introduction of several techniques and channels that facilitate people's contributions. Still, it has not gone the same as zakat distribution.





With reference to Lembaga Zakat Selangor's website, it provides information about Zakat, payment methods, types of Zakat and eligibility criteria for recipients. However, the website lacks certain features that could assist in the process of onboarding Asnaf. In addition, the website does not offer an interactive Q&A function that would allow Asnaf and potential Asnaf to communicate directly with Lembaga Zakat Selangor. This lack may hinder the ability of Asnaf and potential Asnaf to address their specific inquiries related to zakat distribution and eligibility.

Up until this point, the application of technology in zakat management has mainly been concentrated on zakat collection, with less effort being put into integrating technology into zakat distribution. Moreover, Asnaf in Selangor still receive zakat in the form of cash, cheques, and deliveries of food, rice and other necessities (Yahaya & Ahmad, 2019). The non-existence of varieties of distribution methodology reveals that Asnaf communities have dropped out and still lag in the era of technology. Recognizing this fact, the author recommends improving zakat distribution using technological intervention by adopting Artificial Intelligence (AI), Machine Learning (ML) and Financial Technology (FinTech).

The objectives of this paper are to understand how the zakat distribution in Selangor is administered by Lembaga Zakat Selangor particularly on communication and zakat distribution channels; find out the perception of Asnaf in Selangor in embracing the changes towards technological intervention; and recommend technological intervention to uplift zakat distribution process in Selangor. This research is divided into five sections. Followed by this introduction, section two is the literature review while section three is the methodology. Section four discusses the findings followed by the final section which is recommendations and conclusion.

## LITERATURE REVIEW

The scope of this section focuses on the literatures that are given attention to the management of zakat in Malaysia, zakat management in Selangor and the evolution of technology with zakat management. In the time of the Prophet Muhammad (S.A.W), the management of zakat has been divided into two phases which are Mecca and Medina stage. During the Mecca stage, the focus of zakat was primarily on the poor and needy and to encourage a brotherhood sentiment among newly converted Muslims. While in the Medina phase, the zakat is administered and binding by law. It covers who must contribute the Zakat, who is eligible to receive zakat, the procedure to pay zakat and the type of property that is obliged zakat (Hamizul Abdul Hamid, 2012).

### Zakat Management in Malaysia

In Malaysia, the management of zakat is the responsibility of the State Islamic Religious Council and following the enactment for managing zakat funds. The Federal Constitution cites that zakat's contributions should be kept in a separate fund and not in the Federal or State Consolidated Fund. Therefore, the states have created laws related to the management of zakat, such as the Selangor Enactment 2003, the Selangor Zakat and Zoning regulations 2013 and the Shariah Criminal Offences (Federal Territories) Act 1997 (Act 559). In the 1990s, the zakat administration structure was reformed to enhance the efficiency and effectiveness of zakat management (Marhanum & Chowdhury, 2020).

In prior years, zakat management, including the collection and distribution of zakat funds, was organised and conducted manually using human resources. However, in line with the adoption of technology innovation, zakat Institutions are increasingly turning to technology to enhance their operations. Three institutions have disclosed the amount of zakat fund





collection and distribution which are Lembaga Zakat Selangor, Lembaga Zakat Negeri Kedah, and Negeri Sembilan Baitulmal Body on their websites. Other institutions' websites provide broad information about the type of zakat, calculation of zakat, the value of nisab and other relevant topics (Marhanum & Chowdhury,2020)

However, most zakat Institutions have begun to adopt technology systems, particularly for zakat payment system (Zakat collection) rather than the zakat assistance system for those in need (zakat distribution). For instance, zakat Institutions have implemented online banking systems such as FPX, “Jompay”, credit cards, salary deduction and other payment methods to support zakat collection process. 40% of zakat institutions including Negeri Sembilan Baitulmal Body, Pusat Kutipan Zakat Pahang, Majlis Agama Islam Kelantan, and Lembaga Zakat Negeri Kedah have optimised mobile applications to make it easier for zakat payers. The only one institution, Pahang Zakat Collection Center has implemented a chatbot called ZakatChat. It is an artificial intelligence-based application.

Lembaga Zakat Negeri Kedah, has utilised technology to record zakat activities including Asnaf registration online application, Amil (agent) location, real-time amount of zakat collection and distribution (Marhanum & Chowdhury,2020). Even if zakat collection has increased year after year, the problem of zakat distribution must still be reviewed and improved for the benefit of Asnaf (Lubis et al., 2011). The following is the total amount of zakat distribution in Malaysia from the year 2018 to 2022.

Table 1: Zakat Distribution in Malaysia

	TOTAL (RM)	2022 (RM)	2021 (RM)	2020 (RM)	2019 (RM)	2018 (RM)
JOHOR	860,957,521.80	-	-	299,837,853.40	299,809,512.74	261,310,155.66
KEDAH	744,074,170.69	177,289,628.90	-	195,698,217.47	192,622,521.12	178,463,803.20
KELANTAN	931,076,640.01	200,412,526.00	174,126,345.00	185,584,047.39	189,017,291.00	181,936,430.62
MELAKA	361,775,394.08	-	97,811,396.00	80,269,854.00	96,620,295.08	87,073,849.00
NEGERI SEMBILAN	365,392,015.74	-	-	114,237,224.28	123,406,206.16	127,748,585.30
PAHANG	423,670,197.96	-	-	134,991,563.56	146,767,912.17	141,910,722.23
PULAU PINANG	465,507,694.75	-	126,531,077.06	126,581,574.21	111,384,871.79	101,010,171.69
PERAK	533,373,385.32	-	-	165,047,590.88	196,836,278.44	171,489,516.00
PERLIS	-	-	-	-	-	-
<b>SELANGOR</b>	<b>4,536,973,660.00</b>	<b>1,049,288,951.00</b>	<b>922,315,855.00</b>	<b>867,227,310.00</b>	<b>868,263,524.00</b>	<b>829,878,020.00</b>
TERENGGANU	758,840,967.40	233,339,524.95	-	171,122,295.83	191,240,463.33	163,138,683.29
SABAH	444,051,050.13	121,998,470.08	93,586,964.34	88,575,346.45	71,621,952.82	68,268,316.44
SARAWAK	298,507,540.52	88,196,816.00	72,266,300.00	71,597,655.81	66,446,768.71	-
WILAYAH PERSEKUTUAN	3,139,931,596.86	885,431,079.70	732,445,878.00	526,470,916.70	445,352,346.00	550,231,376.46

Source: Official website of Portal Maklumat Zakat and Baitulmal Malaysia

Selangor recorded the highest amount of zakat distribution based on the past five years of trend data followed by Wilayah Persekutuan Kuala Lumpur, Kelantan, Johor and other states in Malaysia.

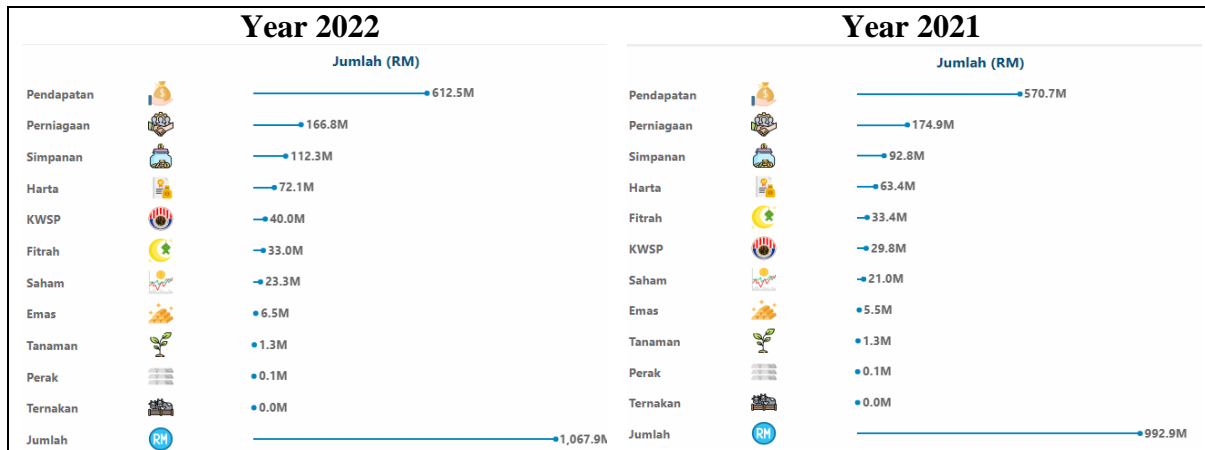
### Zakat Management in Selangor

Zakat management in Selangor is managed by Lembaga Zakat Selangor. It is a zakat institution in Malaysia which was established 20 years ago and remains dedicated in managing and





utilizing the zakat collection. At present, this institution practices the best management in generating and uplifting the excellence not only for the Asnaf (eligible recipients of zakat) but also for the Muslim Community as a whole (Lembaga Zakat Selangor, n.d.). The vision is to be a leader among zakat institutions that practice the management standards align with global level. Three objectives are to empower zakat management, to maximise zakat collection and to improve the effectiveness of zakat distribution. The amount of zakat collection was increased year by year. The growth in zakat collection in Selangor from year 2021 to 2022 is illustrated below.



Source: Official website of Lembaga Zakat Selangor

Figure 1: Zakat Collection in Selangor

According to the website at [www.zakatselangor.com.my](http://www.zakatselangor.com.my), Lembaga Zakat Selangor offers multiple options for zakat payment, including E-Zakat pay, via counters at branches, mobile banking, ATM machine, Selangor zakat Agents, bank counters, direct debit, credit card payments, salary deductions and SMS (Lembaga Zakat Selangor, n.d.). The amount of zakat distribution also increases from year 2021 to 2022 as per chart below.



Source: Official website of Lembaga Zakat Selangor

Figure 2: Zakat Distribution in Selangor

In contrast to the zakat collection methods that published on Lembaga Zakat Selangor's website, zakat distribution information is limited to the process of evaluation and zakat distribution application, relevant forms, criteria of recipients, list of Asnaf Development Institutions and function of calculator for the usage of Asnaf and Fakir.





Indeed, implementing technology could enhance and benefit the zakat distribution process. This includes the process of onboarding Asnaf, zakat disbursement process, monitoring Asnaf's financial condition, filtering information, analyzing data and detecting fraud. Hence, the findings of this study could be used to establish a technology-driven zakat distribution process and to empower Asnaf to use technology.

### **Harmonisation of technology with Zakat Management**

Zakat management traditionally relied on manual systems in terms of record keeping and face to face interaction (Putri & Pratama, 2020). Kuran (2019) claims that the old zakat management system, which relies on manual processes and lack a centralised system, has resulted in inefficiencies and a lack of transparency.

Then, the process of zakat collection has been transformed from the traditional via Amil (person who has right to collect zakat) in counter at zakat institutions or at mosques, to technology intervention process (Yahaya & Ahmad, 2019). In India for instance, there is no deployment of technology in collection and disbursement of zakat fund. The method that has been adopted is solely based on bank transfer made to the account or through cheque sent to the address provided (Muneeza & Nadwi, 2019).

The growth of digital services and financial technology has been tremendous worldwide. Technology has revolutionized the way people interact with each other. From old means of communication such as phones, letters, and pagers to face-to-face meetings, it has now shifted to web-based communication, email, smartphones, mobile banking, blockchain, e-wallet, and FinTech. (Yahaya & Ahmad, 2019). The expansion of financial technology has opened the opportunities for business to tremendous growth and to speed up economic activities (Ngong et al., 2024).

Similar with zakat management, in which the activities of collecting and disbursing zakat funds have been shifted from the service counter to Internet banking. Technology innovation could enhance zakat collection and distribution by offering flexibility, user-friendliness, cost-saving and accessibility anytime and anywhere, thereby ultimately improving efficiency (Yahaya et al., 2019).

For example, mobile banking has become a convenient way in accessing financial services, checking bank balance and transferring money via smart phone (Goh, et al., 2014; Ali, et al., 2018). Zakat collection is currently conducted through mobile banking and online transactions. Zakat payers can calculate their zakat amount, make payments and trace their payments using an online portal or through email (Bin-Nashwan, 2023).

A study conducted by Yahaya & Ahmad (2019), the acceptance rate of Asnaf in Selangor to adopt mobile banking for the distribution of zakat is influenced by various factors, as per the Unified Theory of Acceptance and Usage of Technology (UTAUT) Model. The study found that the intention of Asnaf to use mobile banking increases when the performance of the mobile banking system is improved. Moreover, if someone important to Asnaf suggests using mobile banking, it also increases their intention to use it. Additionally, Asnaf are more likely to show interest in mobile banking if they receive more facilitating conditions to use mobile banking. The authors also suggested for the Department of Technology for zakat institution to discuss with the financial institution to develop system or application which is mobile user friendly for Asnaf (Yahaya & Ahmad, 2019).

In 2018, Lembaga Zakat Selangor introduced a mobile application to Penolong Amil Fitrah (PAF) for the collection of Zakat Fitrah. Prior to the introduction of mobile application, PAF used coupons as evidence of zakat payments. Through this application, PAF has no longer needs to use coupons, as the mobile application system is supported by a link to Lembaga Zakat





Selangor. This is to ensure that the personal information of zakat payers is recorded efficiently and reduces the risk of losing physical coupons (Lembaga Zakat Selangor, n.d.).

Lembaga Zakat Selangor has also introduced e-zakat. A convenient online method for collecting zakat, available at [www.zakatselangor.com.my](http://www.zakatselangor.com.my). To perform zakat payment, the zakat payers need to follow the guidance published on the website. There is no registration or additional charges are required. The payment is online in real-time, with the zakat amount debited directly from the zakat payers' bank accounts. Subsequently, the payment receipt will be given within 14 days (Muneeza & Nadwi, 2019)

Blossom Finance has made it possible for Indonesians to pay their zakat obligations on cryptocurrency holdings via blockchain, without incurring any charges, hassle-free, secure, and cost-effective way of fulfilling zakat obligations (Blossom, 2018). Artificial intelligence has been implemented as a technological solution in the management of zakat. This involves substituting human functions with machines, such as the use of zakat chatbots. Pahang Zakat Collection Center (PKZ) has introduced a chatbots known as ZakatChat to engage with visitors at the official website on matters related to Zakat property (Muneeza & Nadwi, 2019).

In Malaysia, three companies that offer zakat payment through e-wallet are Boost, Gopayz and Touch 'N Go. E-Wallets are a form of financial technology that enables online payments, transfers and purchases of goods without using cash (Salim et. Al., 2020). It is an alternative payment method to avoid using debit cards and credit cards too. It is a revolution of financial technology (FinTech) to facilitate convenient cashless transactions.

Rice Automated Teller Machines (ATMs) have been introduced and installed in Malaysia specifically located in mosques. The ATMs dispense rice for the needy without human intervention and it is similar to cash dispense from bank ATMs (Muneeza & Nadwi, 2019).

Thus far, previous studies prove that there is a lack of technological advancements in zakat distribution with zakat collection taking precedence despite the zakat management process involving collecting, organizing and distributing zakat funds. In fact, the use of technology can be beneficial to both the collection and distribution of zakat. In the context of zakat distribution, technology can enhance the process to become more efficient, resulting in speedier disbursement, lower Asnaf costs (i.e., transportation costs) and increased transparency.

In ensuring the effectiveness and accountability of zakat management, it is crucial that the process is carried out in transparent, trustworthy and responsible manner. By adhering to established guidelines and principles with the support of technological intervention, zakat management can be boosted to fulfil its intended purpose of supporting those in need and uplifting social welfare within the community.

In line with the suggestion of Marhanum & Chowdhury (2020), in their study cited that the Institutions should establish a dedicated technology department to develop a comprehensive platform for managing zakat claims. This platform would enable knowledge sharing, zakat collection, distribution, reporting and investment. In the same vein, Beik et al. (2021) view that the implementation of technology can increase efficacy, transparency and align with the objectivity of zakat to alleviate poverty and uplift public welfare. Neglecting the importance of technology may hinder efforts to address poverty and inequality.





## METHODOLOGY

This study utilizes a qualitative research methodology which consists of questionnaires as primary data and secondary data comprises scientific papers, journals and articles. This study applies this methodology through descriptive analyses of questionnaires, articles, journals and social media input. Similarly, this approach involves a qualitative analysis of documented data from primary and secondary sources to draw conclusions (Beer and Faulkner, 2014; Mayer, 2015).

Therefore, in order to achieve the objectives of this study, a series of questions have been circulated to Asnaf to understand how the zakat distribution in Selangor is administered by Lembaga Zakat Selangor particularly on communication and zakat distribution channels and the perception of Asnaf in Selangor in embracing the changes towards technological intervention.

There are two main sections in the questionnaire which are Section A for general information. This section aims to collect information about Asnaf literally for lifestyle and status including demographic details such as gender, age, education level, occupation and reasons for requesting zakat. Section B focuses on the technology facilities and the familiarity amongst Asnaf with emerging technologies such as e-wallets, AI, ML and FinTech. Other questions were about Asnaf's experience with mobile banking and their willingness and readiness to adopt technological changes.

The data collection and analysis are available in both digital and hard copy formats from the 50 respondents. The digital form link is distributed electronically and via email to various organizations including Masjid Alhasanah, Bangi, Selangor, Lembaga Zakat Selangor, Tabung Amanah Zakat Uniten, UKM/Zakat, UPM/Zakat, Pusat Islam Unisel, UITM/Zakat, Universiti Islam Selangor/Zakat, MMU/Zakat and INCEIF/Zakat. The hard copies of the questionnaire were distributed to the mosques' attendees.

In order to achieve the third objective of recommending solutions to uplift Zakat distribution process via technology, the literature was obtained from library (INCEIF) and online academic database such as Google Scholar, Mendeley and Elsevier. The secondary data has been applied are scientific papers, journals and articles with the relevant keywords such as Artificial Intelligence, Asnaf, e-wallet, FinTech, Mobile Banking, Technology, zakat and zakat distribution are used in collecting and reviewing the literatures. Furthermore, the author joined relevant training to gather more information about AI. Subsequently, the author addressed not only the fundamental principles of AI, FinTech and e-wallets but also the key concepts relevant to the technology-based application of zakat distribution. In addition, the author proposed technological enhancements and provided recommendations and conclusions based on the entire research.

## DISCUSSION AND FINDINGS

### **Zakat distribution in Selangor is administered by Lembaga Zakat Selangor particularly on communication and zakat distribution channels.**

Table 2 represents 50 respondents' general information. 56% of the respondents are female and 44% are male. 86% of the respondents are between the ages of 21 and 40. Furthermore, 88% of the respondents have graduated from university and 50% of them are working as private employees. Only 8% of the respondents indicated that they are unemployed. The data also reveals that 92% of Asnaf are categorized as Al-Masakin (poor). None of them are categorized as Amil, Muallaf, Mujahidin, Al-Riqab and Ibnu Sabil.





Table 2: Respondents' descriptions

Category	Descriptions	Percentage
Gender	Male	44%
	Female	56%
Age	< 20	4%
	21 - 40	86%
	41 - 60	6%
	60 - 70	4%
Education	Primary School	0%
	Secondary School	2%
	College	10%
	University	88%
Occupational	Student	40%
	Private Employees	50%
	Government Employees	2%
	Unemployed	8%
Reasons for requesting zakat	Fuqara (poor)	4%
	Al-Masakin (poor)	92%
	Amil	0%
	Muallaf	0%
	Mujahidin	0%
	Al-Riqab	0%
	Al-Gharimin	4%
	Ibnu Sabil	0%

Table 3: Asnaf facilities

Asnaf was allowed to select more than one answer		
Questions	Description	Percentage
What facilities are available at your home?	Telephone and internet	44%
	Cell phone	16%
	Smart phone	96%
	Computer	8%
	Laptop	84%
	Motor Vehicle	88%
Mode of receiving Zakat.	Cheque	0%
	Online banking	96%
	Cash	8%
	Vouchers	0%
	Direct payment	4%
	Deliveries of food, rice, and other necessities	4%
How do you update your personal information to Lembaga Zakat Selangor?	Email	4%
	SMS	0%
	In person (Over the counter)	12%
	Mobile applications	100%
What are the communication tools between Asnaf and Lembaga Zakat Selangor? (Vice versa).	Email	48%
	SMS	4%
	In person (Over the counter)	56%
	Mobile applications	64%





What do you think is the convenient way for zakat distribution?	Mobile applications	96%
	Mobile banking	84%
	E-wallet	84%
	Cash (Over the Counter)	20%
	Cheque (Postage)	0%
	Deliveries of food, rice, and other necessities	16%

All questions in Table 3 enable respondents to select more than one answer. The respondents assert to have various facilities at home such as telephones, internet, smartphones, motor vehicles and laptops. It is a multiple-choice answer, therefore, 96% of the respondents agree that mobile banking is a mode of receiving zakat and 8% of the respondents declared that they are still receiving zakat through another method, which is cash. Besides, Lembaga Zakat Selangor makes a direct payment to hospital for dialysis treatment and deliveries of food, rice, and other necessities.

All respondents use mobile applications to update their personal information to Lembaga Zakat Selangor. Few respondents also choose other modes, such as via email and by submitting forms in person via Zakat Counter.

Moreover, Table 3 reveals various communication tools between Asnaf and Lembaga Zakat Selangor and vice versa. 64% of respondents chose mobile applications, 56% also selected in person communication via Zakat Counter, 48% of respondents chose email and 4% chose to communicate through SMS.

However, if the respondents were to choose only one answer, 48% of respondents prefer using mobile applications to communicate with Lembaga Zakat Selangor. This is followed by in-person communication via the Zakat Counter, email, SMS and phone calls. Figure 3 illustrates the percentage of votes for each communication tool.

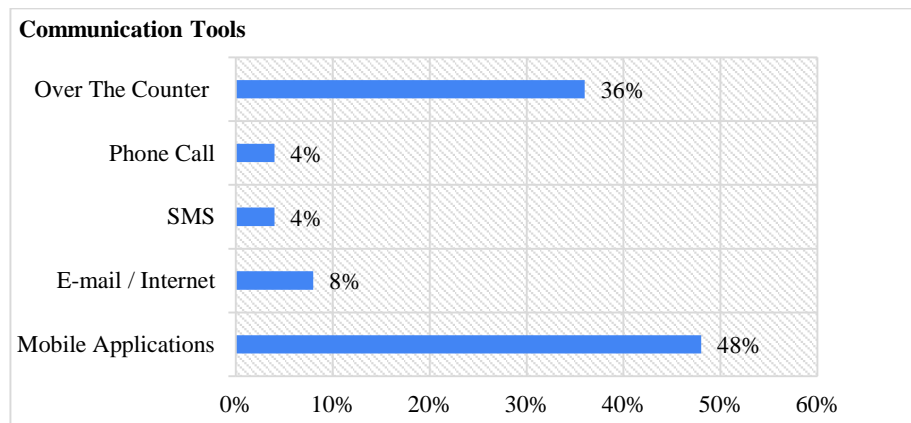


Figure 3: Convenient Communication Tool

Based on the findings, 96% of respondents have reported there will be no difficulties with the current practice of zakat distribution, which is done via mobile banking. However, only 4% of respondents have mentioned facing challenges with in-person communication for zakat distribution (over the counter). Most respondents agree and suggest mobile applications, mobile banking and e-wallets are convenient ways for zakat distribution besides agreeing with cash and deliveries of food, rice, and other necessities. None of the respondents chose cheque.





## The perception of Asnaf in Selangor in embracing the changes towards technological intervention.

Table 4 indicates the findings on the readiness of Asnaf in embracing the changes of Lembaga Zakat Selangor towards technological intervention.

Table 4: Technological Intervention

Questions	Description	Percentage
Have you heard about e-wallets, websites and mobile banking?	Yes	94%
	No	6%
Have you heard about artificial intelligence (AI), machine learning (ML), e-Know Your Customer (e-KYC) and financial technology (FinTech)?	Yes	68%
	No	32%
Do you currently use mobile banking? (i.e. CIMB clicks, Maybank2u, Bank Islam etc.)	Yes	100%
	No	0%
Do you currently use e-wallet? (i.e. Touch n Go e-wallet)	Yes	92%
	No	8%
Please cite your experience involves e-wallets, bank websites and mobile banking.	Very easy	70%
	Easy	30%
	Somewhat easy	0%
	Neutral	0%
	Somewhat hard	0%
	Hard	0%
	Very hard	0%
Are you prepared for the shift of Lembaga Zakat Selangor towards artificial intelligence and financial technology (digitalization)?	Yes	96%
	No	4%
How much are you interested in adopting the technology changes?	Fully Interested	84%
	Somewhat Interested	16%
	Somewhat not Interested	0%
	Not Interested at All	0%

94% of the respondents are aware of e-wallets, websites and mobile banking, while 6% are not aware of them. 68% of the respondents have knowledge about Financial Technology (FinTech), Machine Learning (ML), Artificial Intelligence (AI) and e-Know Your Customer (e-KYC), while 32% are unfamiliar with these terms. All respondents are the users of mobile banking. 92% of the respondents are using e-wallets, while 8% of them have no experience in using them. 70% of the respondents expressed that using e-wallets, bank websites, and mobile banking is "very easy", while 30% of them indicated it was "easy". 96% of respondents are ready for Lembaga Zakat Selangor's transition to AI and digitalization, while 4% are not yet ready. A large majority, 84% of the respondents, expressed strong interest in embracing the shifts of Lembaga Zakat Selangor towards AI and FinTech. 16% of them indicated they were "somewhat interested," while none of them expressed non-interest.

### Technological advancements such as artificial intelligence, machine learning, financial technology, and e-wallets will enhance the Zakat distribution process.

Technology innovation typically occurs when the innovator comprehends the current need, filters the essentials and considers the resources. In addition, an innovation emerges when





there is no technology in place to speed up the process and the system is inefficient and outdated. Particularly, for zakat distribution, there should be a comprehensive system which can eliminate the need to submit physical forms, supporting documentation and requirement to visit the office (over the counter) because Asnaf onboarding process can be simplified via website or mobile applications. Subsequently in this section, the author discusses the potential roles that technology can play in improving the zakat distribution process.

## **Artificial Intelligence (AI) and Machine Learning (ML)**

### *Concepts*

Artificial Intelligence (AI) is an innovation of technology that facilitates machines and computers to reproduce human intelligence and is capable of problem-solving. Traditional AI is programmed by algorithms such as chatbots, healthcare systems and diagnosis. Generative AI is a combination of Traditional AI and Machine Learning (ML) that creates original data according to human input and data analysis. Traditional AI is more basic and “Rule-Based”. However, Generative AI is predetermined and amalgamated with ML to enhance data accuracy and improve customer interactions. Currently, AI is applied for fraud avoidance, personalized experience, automated process, risk management and credit scoring.

Mostly, Financial market industry has implemented AI to replace human decision making to be more sophisticated, to filter information and sentiment, to assist in fraud detection, robotic advisory specifically in trading and investment, to assess potential customers risk and behaviour and biometric recognition. Financial Industry has automated its services, known as Robotic Process Automation (“RPA”). RPA involves the use of software robots, and it is a rule-based task such as in performing compliance reporting, customer service queries and reconciliation. In general, RPA can reduce processing time, minimize human error and cost savings.

RPA changed to Intelligent Process Automation (“IPA”) whereby IPA is a combination of AI and ML to automate the complex tasks that possibly require a decision-making capability. IPA is applied for credit scoring, fraud detection and approval processes that could enhance accuracy, expedite decision making and improve risk management.

Machine Learning (ML) is operated for analysis purposes according to historical data. It is a revolution system that could enhance forecasting accuracy and for better risk management. The financial industry uses ML to examine its customer behaviour, credit risk management and prediction of stock market based on prior data.

From ML, it has been innovated to Natural Language Processing (“NLP”) whereby NLP implies an interaction between human language and computers. It analyse new articles and social media, enables interpreting the information into a standard template report and chatbots for customer service. The outcomes from NLP are to conclude real-time insight related to market sentiments, customers interaction improvement and retrieval information become more efficient.

### *Natural Language Processing*

The author recommends leveraging Natural Language Processing (“NLP”) to uplift the zakat distribution process. The reason for the recommendation is that Lembaga Zakat Selangor’s website currently serves as platforms for zakat information. Hence, the website's functionality can be expanded by adding an interactive Q&A section such as “Chatbot”. Moreover, in improving the user experience, further development into a comprehensive knowledge hub on





zakat related topics, issues and matters is essential. This will allow users, including Asnaf, students and other stakeholders, to access reliable information on zakat and engage with the zakat institutions. Also, Lembaga Zakat Selangor can publish research articles, case studies and educational resources related to zakat on their websites as valuable references for all stakeholders.

NLP based system can be implemented to streamline zakat distribution process especially during the challenging time. Lembaga Zakat Selangor Board reported that during the pandemic of Covid-19, they have distributed a total amount of RM30.5 million to the registered Asnaf (Lembaga Zakat Selangor, n.d.). By utilizing NLP, institutions can gather information about unregistered Asnaf or the needy through chatbots and automatically relay it to zakat institutions.

In collaboration with PT Artina Digitama “ArtDigi”, Baznas has launched a Zakat Virtual Assistant Chatbot named "Zaki" in 2018. “Zaki” can assessed on the LINE messenger application and chat application on Facebook messenger that allow the community to calculate the amount of zakat, zakat education and information on Baznas social and humanitarian programs. The new feature of “Zaki” includes the nearest mosque location, prayer schedule reminder and reminder to Da’wah material. With chatbot technology powered by Natural Language Processing, users can engage in conversations that effectively analyze their needs and preferences (Muneeza & Nadwi, 2019). Hence, Lembaga Zakat Selangor can consider using AI to improvise zakat distribution.

### ***Intelligent Process Automation***

From the traditional way of Asnaf onboarding process, Lembaga Zakat Selangor can shift to Intelligent Process Automation (IPA). IPA is used to automate the extraction of unstructured data from forms, documents and other relevant sources for Asnaf onboarding process. When paired with NLP, IPA can efficiently extract pertinent information from the documents without requiring manual input. Afterwards, the application will automatically route the information to the appropriate personnel or employee for validation and eligibility checks. Similarly, Alam et al. (2019) cited that AI might help in locating and confirming Asnaf who qualifies. The distribution of zakat could undergo a change with the introduction of AI and information technology. It might guarantee that the funds reach the receivers, improve transparency and expedite the distribution process. Compared to the existing approach, AI-driven solutions could automate and optimize the zakat distribution process, reducing manual efforts and indirectly could improve efficiency (Zohdy et al, 2020).

By emerging AI, several key components have to be developed which are (1) AI governance (2) personal data protection (3) safety and security (4) digital infrastructure (5) AI talents and (6) Technology, Research and Development. Also, the ethical principles in AI must be formed according to the current procedures and guidelines, create a comprehensive standards operating procedure and determine value-based principles such as accountability, robustness, safety and security, transparency, fairness and privacy.

The challenges that may arise when embracing AI are related to higher costs, including the need to reskill current workforces, purchase a secure system from a cybersecurity company, and upgrade digital infrastructure. Therefore, it is vital to select the relevant concepts of AI to be developed in uplifting the zakat distribution process and it must be gradually improved by setting key strategies, creating a roadmap to achieve the goals and developing strong Key Performance Indicators (KPIs) to measure performance.





### *Financial Technology (FinTech)*

Lembaga Zakat Selangor is recommended to implement electronic - Know Your Customer (e-KYC) for filtering and screening eligibility. Many FinTech companies in Malaysia offer e-KYC applications to modernise the screening of potential customers. Some of these companies include KnowYourCustomer, Tekkis, Xendity, Wise AI, Experian, EZMCom and Advance.AI.

#### *Electronic - Know Your Customer (e-KYC)*

By using e-KYC, the onboarding process for Asnaf is simplified, expedited and more accurate. Asnaf begins by initiating the zakat application process, providing relevant information including identity verification numbers and authorizing the service provider to access necessary data. The service provider then digitally verifies Asnaf's identity and address to the relevant personnel or employees for eligibility and validation checks. Once validated, Asnaf can access application status, eligibility amount and other pertinent information through a mobile application.

The application can only be accessed by Asnaf through a secure OTP to avoid fraud. Afterward, by using mobile application, Asnaf is then accountable for updating the current income, allowing Zakat Institution to assess Asnaf's financial situation. For example, Malaysia Government for instance has implemented "Pangkalan Data Utama" (PADU), with the primary goal to profiling individual and household members, including citizens and permanent resident aged 18 years and above in Malaysia. In achieving the main objective, PADU system provides a safe, comprehensive and real time country database for analytical production and digitalisation without leaks and supporting in data-driven decision making and budgetary balancing. Malaysia Government aims to improve the efficiency of Government delivery system, stimulating economic and people welfare and eliminate socioeconomic gaps by fulfil people's needs and equality development (Ministry of Economy, n.d.).

Employee Provident Fund ("EPF") has introduced e-KYC process via face recognition technology via KWSP i-Akaun application. This process is required before activating EPF member account. E-KYC process eliminates the needs to submit the physical forms and supporting documentation, save time and effort as no need to visit EPF office and outcome receives real time (Kumpulan Wang Simpanan Pekerja, n.d.).

Therefore, comprehensive standards and operating procedures shall be determined to deploy e-KYC. The challenge that may arise when adopting technology is related to internet connectivity and accessibility amongst Asnaf. To facilitate Asnaf, mosques can be as an Information Technology's hub and assisting Asnaf in completing e-KYC.

#### *E-Wallet*

E-wallet is a primary part of FinTech and a revolution of payment methods. Many FinTech companies in Malaysia offer e-wallet applications to streamline and simplify the payment process. Some of these companies include BigPay, Em-Onei, FassPay, G-Kash, GoPay, GrabPay, JuruPay, LazadaWallet, M-pay and many more.

Lembaga Zakat Selangor has integrated with Touch'nGo e-wallet platform in 2023 for the purpose of zakat collection whereby zakat payers be able to pay various form of zakat including zakat fitrah via the application (Fintechnew.my, 2024). Hence, e-wallets should also be available for Asnaf to use and added as a zakat distribution method. For example, Malaysia Government effort known as "eMADANI" under the heading "MADANI Economy:





Empowering the People." This programme seeks to lessen people's financial burdens while simultaneously promoting the usage of cashless transactions. More than 10 million Malaysians are anticipated to gain from this programme, which offers eMADANI credit worth RM100 that can be used for in-person purchases through specific e-wallet service providers.

Concurrently, participating e-wallet service providers will also present extra campaigns in the shape of coins, reward points, cashback, discounts, and vouchers (Ministry of Finance, n.d.). This technique can be deployed to the zakat distribution procedure in order to keep an eye on the utilisation of zakat just for the acquisition of necessities such as food, utilities, books, stationery, etc. Furthermore, 92% of the respondents are using e-wallets.

## CONCLUSION AND RECOMMENDATIONS

The first objective of this study has been achieved by analyzing how zakat distribution is administered in Selangor through Lembaga Zakat Selangor. The communication and distribution channels used by Lembaga Zakat Selangor include mobile applications, in-person communication via Zakat Counter, email, and SMS. Zakat distribution channels include mobile banking and cash. Additionally, Lembaga Zakat Selangor makes direct payments to hospitals for dialysis treatments and delivers food, rice, and other necessities to those in need.

The second objective of this study is to determine the attitudes of Asnaf in Selangor towards technological advancements. A significant majority, 84% of the respondents, expressed a strong interest in embracing the changes introduced by Lembaga Zakat Selangor in the form of AI and FinTech. This reflects a positive societal perception towards technological innovation.

The third goal is to propose technological interventions to enhance the Zakat distribution process in Selangor. The analysis indicates the potential roles of technology in improving the zakat distribution process, such as AI, ML, FinTech, and e-wallets. Lembaga Zakat Selangor should deploy technology to encourage fair distribution for the benefit of zakat recipients. Furthermore, the use of technology in zakat distribution could help to reduce concerns of inequality and poverty. It will provide zakat payers with trust and assurance that their alms are being used appropriately to benefit the recipients (Dahlawi et al., 2021).

In addition, the Malaysian government aims to establish a robust national AI ecosystem by 2025, enabling the government, businesses, and people to leverage the benefits of AI securely for economic prosperity and social well-being. Therefore, Zakat Institutions should also have a global mindset and strive to cultivate a highly skilled digital workforce. In the same vein, Marhanum & Chowdhury (2020) view that optimising technology with an effective structural model will assist the zakat institution in embracing Malaysia's fourth industrial revolution.

The recommendations derived from this paper is based on the potential impact of technological advancements, such as artificial intelligence, machine learning, financial technology, and e-wallets, on the Zakat distribution process. It is essential to provide proper training for employees, stakeholders, and Asnaf to effectively utilize these technological advancements.

Malaysia Government's Digital Economy Initiatives under New Industrial Master Plan 2030 and Malaysia Digital Economy Corporation (MDEC) Programs is to support AI implementation and digital skill development. Malaysia government has introduced Artificial Intelligence Roadmap (AI-RMAP) 2021-2025, on a mission to create a thriving national AI eco-system that allows government, business and people capitalize the benefit of AI in a secure and safe manner for economic prosperity and social wellbeing (Ministry of Science, Technology and Innovation, n.d).





By 2025, AI-RMAP is planned to achieve (1) Establishing AI Governance (2) Robust AI research and development ecosystem (3) Digital infrastructure for AI, AI talents and skilled-digital workforce (4) Instill AI awareness and AI adoption (5) AI Innovation hub. Components of Malaysia’s digital blueprint is to transform government services and processes become more efficient and citizen-centric (Digital Government), to robust digital infrastructure to support connectivity (Digital Infrastructure) and to produce a skilled digital workforce via training and education program (Digital Skill and talent) (Ministry of Science, Technology and Innovation,n.d).

Human Resource Development Corporation (HRD Corp), a government agency under the purview of the Ministry of Human Resources (MOHR), Malaysia has organized various training which focuses on five areas through National Training Week (“NTW”). NTW provides free skill development programs via diverse learning modes and platforms. (National Training Week, n.d).



*Source:* Official website of National Training Week (“NTW”)

Figure 4: Pillars and Focus Areas of National Training Week

MyDigital Corporation, established on 13th September 2021, is running a 3-month certification program to instill a digital transformation mindset in leaders, encouraging them to involve in digitalization and make a paradigm shift in their organization. This program is another initiative and opportunity learning experience organized by Malaysia government agency in fostering digital talents.

Therefore, Lembaga Zakat Selangor should integrate with the government agencies in conducting training in relation to computer and information technology, new and high technology to educate Asnaf, employees and stakeholders. Furthermore, Lembaga Zakat Selangor should take advantage of these opportunities to improve the zakat distribution process, especially since the Malaysian government is in the process of implementing AI by 2025. It is essential to collaborate with the government and its agencies not only for training but also to obtain grants for adopting new technological advances.

The scope of this study is currently limited to Asnaf and Zakat Institutions in Selangor. However, it is recommended to broaden the research to include other Zakat Institutions in Malaysia. The potential impact of integrating technology is expected to be advantageous, as each zakat institution can share their experiences with utilizing technology in zakat distribution. Additionally, this study is currently restricted to exploring the implementation of AI, ML, FinTech, and e-wallets in zakat distribution. It would be valuable to further develop this study by focusing on the technology used in zakat distribution through the comprehensive development of suitable software.





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