Study on Block-Chain Implementation in *Zakat* Management (Case Study in Indonesia)

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Abstract. Studies on the role of ICT in *Zakat* management have been carried out with the conclusion that the use of ICT can increase efficiency, convenience, and practicality in paying *Zakat*. However, the problems faced by *Zakat* institutions are: Trust, Credibility, Accountability, and Transparency. To deal with these issues is by using Block-chain technology. Thus, it is necessary to conduct a study in more detail of block-chain implementation in *Zakat* management. This research is a descriptive research involving 200 respondents as the sample throughout Indonesia. The sample includes Academicians, Islamic Finance Activists, *Zakat* Payer, and Scholars. The Sampling method used is area, stratified, purposive sampling. The result shows that the use of ICT can increase people awareness to pay *Zakat*. Secondly, the use of block-chain technology will increase the credibility value of institutions. Last but not least, the transparency will encourage people's belief and trust to the *Zakat* institution. Therefore, to design appropriate model Block-Chain is needed to facilitate good relationship among Zakat stakeholders. In term of TAM (Technology Acceptance Model) the use of Block-Chain in *Zakat* management will facilitate in three ways, namely; Perceived of Usefulness Perception, Increasing Performance and Perceived on Easiness of Use. The result also revealed that credibility is the most significant factor, and then followed by accountability, transparency, and trust.

Keywords: Zakat Management, ICT, Block-Chain, Zakat Institution

1 Introduction

One of the important concepts in asset management in Islam is the management of socio-religious funds and *Zakat* is a manifestation thing in this concept. However *Zakat* in Indonesia still poor, although Indonesia is a large Muslim country by more than 250 million population. It is therefore strengthening the *Zakat* management to realizing welfare state through increasing the power of people economic is big issue to be developed [12]. As in the history of Islam has approved that of *Zakat* has a major contribution in advancing Islamic civilization [20].

The general public more understands the distribution of *Zakat* limit to be given to those who are entitled, such as to the *faqir, miskin, gharimin, mualaf, ibnu sabil, fisabilillah, riqab*, and *amil Zakat*. Basically, the distribution of *Zakat* can be managed more optimally for the purpose of empowering the poor who are included in the 8 *asnaf*. In other words, *Zakat* is not only for meeting the consumptive needs of *mustahiq* [20].

Democratic freedom in the management of *Zakat* funds is shown by the number of *amil Zakat* institutions established by the community, while still being supervised by the National *Amil Zakat* Agency from the government. Authorization of *Zakat* management from *Zakat* collection to distribution of *Zakat* funds held by each institution makes reporting of *Zakat* management to stakeholders is very important. Stakeholders in this case are all people, both those who pay their *Zakat* through institutions, as well as government agencies as regulators and the legislative body (supervisors) for the implementation of *Zakat* management in Indonesia.

Several previous studies show the importance of professionalism of *Zakat* institutions in an effort to increase the tendency of people for paying *Zakat* through *Zakat* institutions. However, some people still worry the trust, credibility, transparency, and accountability of the *Zakat* institutions. Based on the study many *Zakat* institution neglecting this issues, whereas this items are considered as important point for the society, and it can reflect the people mindset in the community to increase the trust to *Zakat* institutions [13].

Block-Chain is new technology that has some feature deal with that issues, as block chain is open ledger account which is every member in the group can monitor any transactions change in the group. Besides that, based on block chain technology people can be able to make any transaction each other easily and very fast. Hence, it hope that this technology can settle the problem of trust, credibility, accountability, and transparency. The most important matter is how to increase public trust, credibility, transparency, and accountability to *Zakat* institutions, the propose one way is to adopt certain technology that can facilitate more good government of *Zakat* management [23]. Based on the above background, it is interesting to explore, investigate in more detail and to design appropriate model of *Zakat* fund management by utilizing an integrated information system technology (Block-Chain).

2 Literature Review

This part we will discuss the potential of *Zakat*, *Zakat* Management in Indonesia, *Zakat* Management based on Trust, Transparency, Credibility, and Accountability, Community Response to Information Technology-Based on *Zakat* Services, Block chain for Worldwide *Zakat* Management. Besides that, we also discuss Block chain in Indonesia, and *Block-Chain* Technology for Digital *Zakat* Management.

2.1 Potential of *Zakat*

The potential for cash *Zakat* that can be collected from the 200 million Muslim population is around IDR 300 trillion per year [12],[20]. However, the collection rate has only reached 2 percent of this potential, namely Rp. 3.7 trillion per year. Basically, this gap begins with a large gap between education about worship for Muslim children [21].

Muslims in Indonesia are *famil*iar with the word *Zakat*. However, this *famil*iarity does not make them really understand about *Zakat*. From childhood, children will be taught to perform

prayers correctly from movements to prayer readings. However, education about *Zakat* is less of a concern, both in schools such as TPA, TPQ, and education by parents [21]. The mindset that Muslims have an orientation to become people who are able to give *Zakat* has not been instilled since childhood, so that the awareness to spend part of their assets has not become a priority for the Muslim community today.

On the other hand, the large potential of *Zakat* in Indonesia is dominated by contemporary types of *Zakat* compared to the compulsory *Zakat* yield categories that have been classified by classical scholars. However, it needs to be understood that contemporary *ijtihad* regarding *Zakat* that has emerged is still based on classical works and existing texts, not ijtihad without foundation [17][21]. Therefore, modernization in the field of muamalah is permitted by Islamic law, as long as it does not contradict the principles and Islamic law itself.

Moreover, it needs to be realized that human life and needs are always evolving and changing, so Islamic law in the field of muamalah, generally only regulates and establishes the basic principles of law in general. Meanwhile, the details are left to Muslims, wherever they are. This is in accordance with the principle of muamalah, namely "the law of origin stipulates that the conditions in muamalah are Halal unless there are arguments against it" [17mufrai].

In this modern era, there are many objects that are managed to obtain high economic value. Humans are not only able to exploit their external potential but modern humans can also exploit their existing potential to be developed and extracted and then take advantage of their expertise such as doctors, lawyers, lecturers and so on. Therefore, some contemporary categories of *Zakat* include *Zakat* on honey and animal production, *Zakat* on investment in factories, buildings and others, *Zakat* on profession, and *Zakat* on stocks and bonds. Even Dr. Yusuf Qordhowi also added *Zakat* of marine products which includes amber pearls and others [17].

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2.2 *Zakat* Management in Indonesia

The essence of *Zakat* that is generally understood by the public is that *Zakat* will be *afdol* if it has been received by those who have the right. However, the use of *Zakat* funds in the hands of *mustahiq* is not considered, whether it is only used to meet consumptive needs or will the *Zakat* funds be used to improve their economic conditions so that they can convert *mustahiq* into *muzakki* (people who are able and obliged to give *Zakat*). Moreover, it is feared that the distribution of *Zakat* for consumptive use can make *mustahiq* off guard and not try to have a better economic condition, because every year they feel sure that someone will give them, and they also have the right to ask *muzakki* for their rights.

The concept of *Zakat fiqh* explains that the *Zakat* system seeks to bring together surplus Muslim parties (*muzakki)* with deficit Muslim parties (*mustahiq*). This is with the hope that

there will be an equal distribution projection between Muslim surpluses and deficits or even turning the deficit (*mustahiq*) into a surplus (*muzakki*) [21]. This means that the management of *Zakat* can change poor Muslims to become capable, shackled people (*Muallaf, Gharimin, Riqab, and Fi Sabilillah*) to be free, and turn stupid people (*Ibn Sabil*) into smart people. Thus, it is necessary to have a productive and effective *Zakat* distribution pattern in order to convert *mustahiq* into *muzakki*. Namely, with professional management of *Zakat* funds by considering market needs (*mustahiq*). Thus the benefits of *Zakat* will be more optimal and not only to meet the consumptive needs of *mustahiq*.

The management of *Zakat* by *Zakat* institutions can also prevent the sporadic or poorly organized management of *Zakat* funds. Because sometimes poor areas are generally located in an area where there are not many *muzakki* [17]. So that the distribution of *Zakat* funds is not only to some *mustahiq* in the *muzakki* area, but also from *mustahiq* to *mustahiq* in other areas which often have not received much assistance.

Zakat is one of the characteristics of the Islamic economic system because *Zakat* is a form of implementation of the principle of justice in Islamic economics. M.A. Mannan [20] in his book entitled Islamic Economics Theory and Practice states that *Zakat* has six principles, namely:

a) The principle of religious belief, namely that *muzakki* (people who are obliged to pay *Zakat*) are a manifestation of their religious beliefs,

b) The principle of justice and equity, this principle explains the social purpose of *Zakat*, namely by dividing the wealth given by Allah to be fairer and more equitable to humans.

c) The principle of productivity, this principle emphasizes that *Zakat* must be paid because the property can be used productively by those who are entitled,

d) The principle of rational, which is very rational that the *Zakat* of the property that produces it must be issued (given to *mustahiq*),

e) The principle of freedom, namely those who are obliged to pay *Zakat* are not slaves (people who are freedom),

f) The principle of ethics and reasonableness, which means that *Zakat* is collected by means of stipulated rules, and cannot be collected arbitrarily.

In Indonesia, the establishment of *Zakat* management organizations has been regulated in Law Number 23 of 2011 concerning *Zakat* Management. *Zakat* management organizations, whatever their form and position, generally have two functions [24], namely:

Firstly: As a financial intermediary, *Amil* became an intermediary between *muzakki* and *mustahiq*. *Muzakki* pays his *Zakat* through *amil Zakat* which will then be distributed to *mustahiq* with various methods of distribution and management of *Zakat* funds to achieve optimal benefits of *Zakat* fund distribution. As a financial intermediary, *amil* is also required to apply professionalism and management that is transparent and trustworthy to increase trust.

Secondly: Empowerment. This function is the main function of the existence of *amil Zakat*, namely striving for the distribution of *Zakat* funds to be carried out fairly, on target, and achieving optimal benefits, so that it is hoped that it can turn into a new *muzakki*.

Nowadays, there are many *Zakat* institutions in every region in Indonesia so that the distribution of *Zakat* is increasingly being carried out by *Zakat* institutions. The socialization is carried out by understanding the importance of tithing, the obligation to give *Zakat*, and the introduction of the role of *Zakat* institutions [21]. Especially now that more and more people are aware of social issues and the importance of giving, this is evidenced by the number of social crowdfunding campaigns or programs to help people who are experiencing disasters such as natural disasters or serious illness which require a lot of money for treatment. Building

a *Zakat* awareness network will also seek and facilitate the optimization of the collection and distribution of *Zakat* funds.

Institutions as well as *Zakat* have implemented various innovations related to *Zakat* collection and management strategies, namely from traditional and conventional methods to becoming more modern, innovative and expansive. Such as a cash *Zakat* collection strategy that is not only done offline such as visiting *muzakki* door to door, serving *muzakki* through service offices, or opening outlets or stands in crowded places, but also transacting *Zakat* can be done online such as through the transfer system from the application, mobile or net banking, collaborating with marketplaces such as Bukalapak.com, or creating online websites for crowdfunding social funds. The collection strategy can increase *Zakat* donations and bring *Zakat* institutions closer to the community. Especially the millennial generation who are more active on online social media, and are a generation that in the next few years will have entered adulthood with a more mature financial condition (*muzakki* candidates).

However, the online *Zakat* collection strategy has not been balanced with the accountability of managing *Zakat* funds and *Zakat* assets online. Thus, this study not only looks at the potential for cash *Zakat* collection as a source of productive *Zakat* management, but also develops *Zakat* management strategies in a more integrated manner, both in terms of collection and publication of reports on the management and distribution of *Zakat* funds.

2.3 *Zakat* Management based on Trust, Transparency, Credibility and Accountability

Zakat management by utilizing digital technology is not only for the strategy of collecting *Zakat*, but also for the transparency of the performance of *Zakat* institutions to stakeholders/society at large. This urgency is based on the imbalance between *Zakat* fund collection strategies that have been modern and are being intensified by *Zakat* institutions, and *Zakat* institutions' attention to improve their method of accountability. Based on previous studies, it strengthens the importance of a transparent form of *Zakat* management reporting.

Table 1. The Urgency of Developing a Comprehensive *Zakat* Management Model

No	Previous Researchs	Conclusion
1	[15]	Expansion of beneficiaries will indirectly increase public trust.
2	[13]	Trust influences the intention of the community to pay *Zakat* through the *Zakat* board.
3	[9]	The transparency of the Rumah *Zakat Amil* Institute can increase the loyalty of *muzakki*.
4	[11]	The credibility of *Zakat* institutions influences people's behavior to pay *Zakat*.
5	[18]	The importance of accountability and transparency to increase trust.
6	[22]	By increasing the quality of *Zakat* institutions such as transparency, outreach and administration. So that the preference for paying *Zakat* in these institutions will increase.
7	[18]	Transparency, accountability, and advantage are important variables in Good Governance at the *Zakat* Agency, because these three variables have a significant effect on satisfaction and loyalty.
8	[15]	Transparency of financial reports, *Zakat* management, attitude of managers partially and simultaneously has a significant effect on trust *muzakki*.
9	[15]	The factors that dominate the behavior of paying *Zakat*: religion (they feel it is better to give *Zakat* directly to *mustahiq*s who are still relatives / close / around them), the second factor is the location of *Zakat* institutions that are far away, services that are considered unsatisfactory, the credibility of *Zakat* institutions (community lack of confidence that *Zakat* institutions have distributed appropriately because they are considered not transparent), and their income levels. In other words, people want *Zakat* institutions to be more professional, manageable, transparent, and have satisfying services..
10	[19]	Charity organizations must ensure procedural transparency and emphasize the collection, distribution and use of *Zakat* methods to attract more donors / *muzakki*.
11	[25]	There is an urgency for the existence of *amil Zakat*.

No	Previous Researchs	Conclusion
12	[23]	Ideally, paying *Zakat* through the state or *Zakat* institutions, however, the credibility of these institutions could be doubted (there is a crisis of trust), so that the tendency that occurs is to pay *Zakat* directly to the beneficiaries. Therefore, it is very important to create trust in the collection and distribution of *Zakat* from *amil Zakat* so that it will encourage more Muslims to pay their *Zakat* and distribution of *Zakat* by *amil Zakat* allows to reach as many *Zakat* recipients as possible. This system encourages the creation of screening organizations / institutions by Muslim professional accountants and others who can help make *Zakat* management transparent and trustworthy. The institution must provide accountability reporting to the community so that the community is willing to cooperate with them. In other words, trust in the management of *Zakat* and the recommended ways in which trust can be built in the collection and distribution of *Zakat* is effective.
13	[26]	The main factor in making people pay *Zakat* is an understanding of *Zakat* by young people. Second, there are facilities and services available to facilitate the transaction to pay *Zakat*.

Source : various sources

Earlier researchers realized that if *Zakat* institutions want to increase their collection, it must prove that they are quite trustworthy in managing *Zakat* funds. This trust and responsibility does not only report financial reports, the total collection and distribution of *Zakat* funds each year, to the government and the national *Amil Zakat* Agency, but also must be conveyed to the wider community as parties who have the potential to entrust their *Zakat* to *Zakat* institutions.

The public expects transparent and credible reporting. We can actually see this transparent standardization if we intend to find the financial reports of related *Zakat* institutions, also open the websites of *Zakat* institutions, to find out the *Zakat* distribution areas, and what activities are carried out by *Zakat* institutions (*Zakat* distribution activities).

Here, it appears that there is a gap where people have the convenience of giving *Zakat* anywhere and anytime, but it will be a bit difficult to get information related to reports on the distribution of *Zakat* funds. Moreover, the distribution of *Zakat* funds must essentially be grouped based on the area of beneficiaries, based on the agreement on the donations of *Zakat*, *infaq* and alms received, and various other types of distribution program specifications. Example; for mosque building programs, scholarships, *da'wah* to prevent the Christianization of poor Muslim communities, business capital assistance for the poor, as well as community economic empowerment programs.

2.4 Community Response to Information Technology-based on *Zakat* Services

Previous research related to the behavior of paying *Zakat* by the community in general shows several determinants. Someone will pay *Zakat* through official institutions because of their respective intentions to adopt behavior. With this intention, the potential for the community to take action is even greater. Another factor that has great determination on the implementation of behavior is the ability of each individual to the existing environmental conditions.

Currently paying *Zakat* through *Zakat* institutions can be done through various ways, such as bank transfers, through applications that work with *Zakat* institutions, through social crowd funding websites, or directly visiting the service offices of *Zakat* institutions. The factor of the community's ability to utilize the services provided is the second most influential factor in making people pay *Zakat* through *Zakat* institutions. This reaffirms the importance of technological factors in today's community services.

2.5 Block chain for Worldwide *Zakat* Management

The current collection strategy can increase *Zakat* donations and bring *Zakat* institutions closer to the community. However, the online *Zakat* saving strategy has not been matched with accountability for managing *Zakat* funds and *Zakat* assets online as well. Thus, this study not only looks at the potential for cash *Zakat* collection as a source of productive *Zakat* management, but also develops *Zakat* management strategies in a more integrated manner, both from the collection side and from the publication side of *Zakat* management reports. Namely, the *Zakat* payment management model and *Zakat* distribution reporting management using the *Block-Chain* system (worldwide *Zakat Block-Chain*). The concept needs to be tested for its potential development in the community in the future, by looking at the public's response to the need for integrated *Zakat* management reporting and *Zakat* management through worldwide *Zakat* management through *Block-Chain.*

Block-Chain is a system of record that is documented and spread across many databases. This system is also known as a distributed ledger. The *Block-Chain* system maintains the validity of existing transactions, and the movement of digital money will be clearly recorded and easy to trace. This decentralized transaction documentation minimizes changes in data unilaterally, and prevents cybercrime like hacks. Because transactions that have been recorded / created cannot be changed or deleted (are immutable) [9].

Block-Chain technology has been used for payment traffic transactions, because the costs are cheaper and faster in terms of time. It also makes stock trading easier because it is more accurate and the settlement process is faster. *Block-Chain* can also facilitate business transactions such as authorization and verification of documents, also make it easier to analyze consumer data and measure the level of consumer loyalty based on the frequency of transactions made. The auditing process and transaction tracing will also be easier to do, especially by the government, to eradicate fraudulent transactions such as corruption, bribery, and others [1].

a) Block-Chain in Indonesia

The Indonesian government's support for the *Block-Chain* system was conveyed by the Minister of Communication and Information, as long as it did not violate state principles, as there is virtual currency such as bitcoin which cannot be recognized in Indonesia. However, the government supports the use of block chain to improve the performance of existing businesses in Indonesia, such as for service systems from financial institutions such as banking. The *Block-Chain* system can provide transaction transparency, and can also be adapted to financial institutions such as banks in Indonesia, making it easier for banks to be able to track when, where, from where, and how much money is moving from one bank to another [9].

b) Block-Chain Technology for Digital *Zakat* Management

In the previous sub-chapter, the factors that can influence public acceptance of a technology have been explained, namely from the acceptance or perception of its usefulness

and the perception of the ease of using the technology. *Block-Chain* is a technology that is the main topic in the technology acceptance model in this *Zakat* research. However, *Block-Chain* as a digital *Zakat* management system has not been implemented so that this research examines the opportunities and perceptions (acceptance) of the community with a more modern and comprehensive *Zakat* management namely the *Block-Chain* system.

Thus, although in general this research refers to a technology acceptance model with *Block-Chain*, where the influencing factors are the perception of use or usefulness and the perception of ease of using the system, this study includes several advantages of *Block-Chain* such as good security from cybercrime, fraud, fraud, manipulation, or others. As well as the efficiency that can be provided by implementing *Block-Chain* compared to existing digital technology. This research ends with the public's intention to tithe online using the worldwide *Zakat* by *Block-Chain* system.

3   Objective and Research Method

The aim of the study is to explore and investigate in more detail the implementation of Block-Chain technology to support Zakat management in Indonesia, Besides that, the study also to answer to what extend ICT will support people in paying Zakat, and also to what extend block-chain that will be designed in this study will beneficial to zakat institutions. In the early stages of the developed model, it is necessary to analyze the factors involved.

This research is a mixed method research, the data used in the study are secondary data and primary data extracted from several sources. The data collection technique uses triangulation (a combination of observation, interviews and documentation study). Respondents are people who have insight related to *Zakat*, and become Islamic economic activists, and academician as well.   The respondents is divided three categories; Academicians, Islamic Finance Activists, *Zakat* Payer, and Scholars. Besides that, we distributed to six province; central java: 40 Respondents, West Java; 20 respondents, East Java: 20, Jakarta:20, Aceh as represent Sumatra: 40, Banjarmasin (as represent Kalimantan): 20; Makasar (as represent Sulawesi and Other) 30, Other Islands on East part of Indonesia: 10, so in total 200 respondents. We used by email, google form, bitly, WA group of Islamic Association. Sample method used area, stratified, purposive sampling. We have distributed 225 questionnaires but no all are deal with the requirements.

The respondents criteria who are Master graduated, and already go hajj, Besides that, f respondents who have paid *Zakat* for more than 5 years. All the applied criteria to make sure that the respondents have good understanding regarding the implementation of *Zakat*. All the respondents to fill-up the questionnaires in order we can fulfill the kind of research namely analytic descriptive research which have aims to describe the factors increasing people's interest in in what technology to support *Zakat* management i.e. public acceptance on block chain concept to backup *Zakat* management.

4   Result and Discussion

In this section we will discuss about The Role ICT to Support *Zakat* Management, The Study on Using Block-Chain to Support *Zakat* Management and Block-Chain Model Based for *Zakat* Management Model. After that, we will discuss the Benefits of Using the Block-

Chain System, later on, also discuss related the Use of Block-Chain from Technology Acceptance Model (TAM) Analysis, last but least, also the using Block-Chain Model in *Zakat* Management from Technology Acceptance Model (TAM) View.

4.1 The Role ICT to Support *Zakat* Management

The following is a summary of the outer loading from the process data in this research related people preferences in supporting *Zakat* management based on ICT.

Table 2. Analysis of Factors Affecting Community Behavior to Pay *Zakat* through *Zakat* Institutions Using ICT

Indicators	Outer Loading	Significant	Rank
Intention to use	0.958	Significant	1
Intention to Recommend	0.947	Significant	2
Intention to support	0.943	Significant	3
Easy to Use	0.924	Significant	4
Perceived Value	0.907	Significant	5
Efficient Way	0.902	Significant	6

Source: The Process Data

Based on these data, people support *Zakat* management by using ICT are: people will increase intention to use the system is most importatnt factor, then followed by intention people to recommend others, intention to support this agenda is third rank, and people feel easy to use and perceived value are number five and six. Last but not least people consider *Zakat* management using ICT is efficient way.

4.2 The Study on Using Block-Chain to Support *Zakat* Management

The study related on the using Block-Chain in term of supporting *Zakat* management we involve four variables namely, Credibility, Accountability, Transparency, and Trust. We collected people opinion in term of the benefit for *Zakat* institution by using Block-Chain technology in Indonesia. We then derived sixteen indicators by P1 to P16 which is describing the construct of questionnaires. The result will summarized in the following Table.

Table 3. The Benefit of *Zakat* Institutions by Using Block-Chain (Respondent's View)

Variable	Code	Questions Construct	Mean	Stdev	AVERAGE
CREDIBILITY	P1	Contact the OPZ	5.93	1.74716	5.92
	P2	Pay *Zakat* regularly even though not through OPZ	5.91	1.8880	
ACCOUNTABILITY	P3	Benefits (for Muslims)	5.80	1.2728	5.80
	P4	Practicality	5.75	1.3623	
	P5	Happy / pleasant feeling	5.85	1.4806	
	P6	Possibility to do (because of its simplicity)	5.70	1.292	
	P7	Level of Importance	5.90	1.4452	
TRANSPARENCY	P8	Independence of personal will	5.55	1.6	5.40
	P9	Belief in the capacity or ability of a certain individual to behave	5.45	1.346	
	P10	Ability to take advantage of facilities for behavior	5.70	1.301	
	P11	Ability to use information facilities	5.30	1.266	

Variable	Code	Questions Construct	Mean	Stdev	AVERAGE
TRUST	P12	The *Zakat* Management Organization (OPZ) is open in the process of collecting and distributing *Zakat*, Infaq, Alms (ZIS) funds.	5.15	1.305	5.25
	P13	OPZ has a good and broad understanding of ZIS (*Zakat*, Infaq Alms).	5.25	1.173	
	P14	OPZ is able to convey well about ZIS (*Zakat*, Infaq, Alms) to *Muzakki*.	5.35	1.325	
	P15	OPZ publish reports of receipt and distribution of ZIS funds.	5.10	1.463	
	P16	OPZ distributes ZIS funds to eligible people (right on target).	5.25	1.462	

Source : Data Analysis

This study uses indicate that if the *Zakat* institutions using block chain technology will increase the value of institution in terms of: first, creditability of the *Zakat* institutions. Second, will increase accountability so people want to pay *Zakat*, thirdly, transference, it will encourage people increase the belief to the *Zakat* institution. Last but not least, trust, it will increase people trust to the *Zakat* institutions. Therefore the using sophisticated technology i.e. block-chain is needed. The result also revealed that, results that credibility is the most factors, and followed by accountability, transparency, and trust.

Accountability and trust factor emphasizes that the existence of a professional *Zakat* institution can make it easier to pay *Zakat*, its distribution is more targeted, more practical. Even so, *amil Zakat* institutions still have to pay attention to the professionalism of *Zakat* institutions, there must be periodic reports, as well as being effective, accountable, and in accordance with sharia and in accordance with state regulations. Principles of usefulness and practicality that are dominant make the next indicator construct refer to the concept of the Technology Acceptance Model (TAM). This also strengthens the potential acceptance of a technology-based *Zakat* management model.

Credibility will be able for individuals to take advantage of technology is due to its simplicity, socialization of technology use, and creating transparency in distribution to society. The use of technology in these institutions can be increased by maintaining public trust in the institution. Moreover, transparency will be   maintaining the professionalism of the institution, the mandate/distribution on target, reports that are open and periodically involved, involving *muzakki* in several activities of the *amil Zakat* institution, transparent in financial reports and *pentasyarufah* activities, becoming an independent institution, and there is no political element/affiliation with the government/certain party. The average value of the distribution factor and high professionalism, directs a model that can realize this accountability method.

The *amil Zakat* institution must also maintain regular reports to *muzakki*, accountable and transparent reports, openness of management information in the mass media, socialization, transparency, and managed productive programs, as well as openness and quality empowerment programs. By publishing a large and widespread coverage of beneficiaries, it is believed to increase public trust in *Zakat* institutions [13] [15]. Because the capacity of *Zakat* institutions is considered to be able to distribute *Zakat* funds optimally even to areas with minimal *muzakki* (not many rich Muslim communities).

4.3 Block-Chain Model Based for *Zakat* Management Model

Based on the results of the discussion in the previous sub-chapter, this study intends to compile a comprehensive picture of the use of Block-Chain for *Zakat* management. Namely

Zakat management using Block-Chain which can present the design of the service for receiving / collecting *Zakat* funds, accompanied by reporting on the use and distribution of *Zakat* funds, in the same system. The scheme being carried is presented in Figure 1.
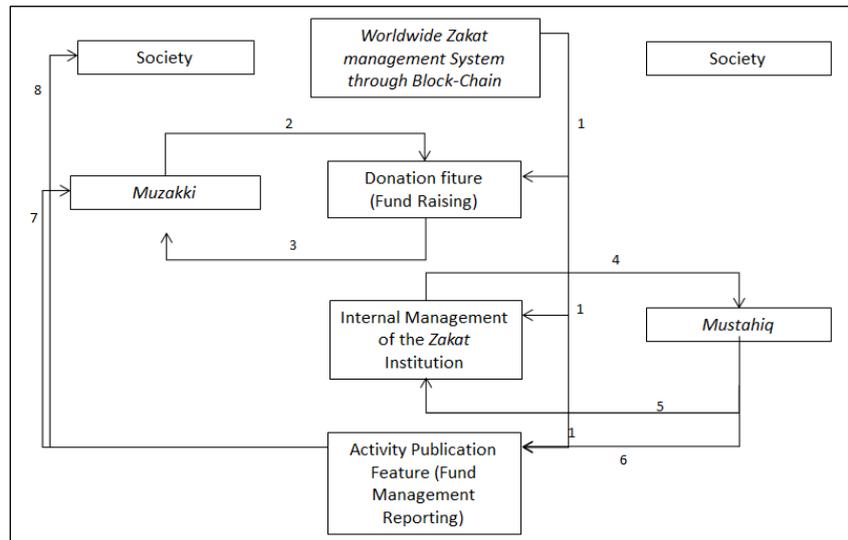

Fig. 1. Block-Chain-based *Zakat* Management System Modeling

Discriptions:
a) Emphasize the *Zakat* management system that is integrated in one system, namely the management of *Zakat* fund collection, internal, and reporting on the management and distribution of *Zakat* funds.
b) In this system *Muzakki* can directly make donations or *Zakat* payments. Transactions will be recorded in the database according to the *muzakki* identity, and the total additional donations will be visible to the general public in real time. In this donation feature, *Zakat* institution programs can also be displayed, so that *muzakki* or donors can donate based on the programs they support.
c) *Muzakki* or donors will automatically receive proof of donation. Donations for *Zakat* can be attached for tax reporting purposes. This is in accordance with the Indonesian government policy where *Zakat* payments at official *amil Zakat* institutions can be reported for deduction of PKP (taxable income). *Muzakki* can also see a recap of donations / contributions that have been made so far, as long as transactions are made through the system.
d) *Zakat* funds collected will be managed by *Zakat* institutions, then distributed to the appropriate *mustahiq*. If *muzakki* or donors donate to a particular program, it will be distributed to the program in question. This can maintain the conformity of the contract, and increase the transparency of the trustworthy *Zakat* institutions.
e) Feedback on the distribution of *Zakat* funds. In this flow, the feedback obtained can be in the form of a report on the distribution of funds, its impact on *mustahiq*, and a progress report on *mustahiq*'s condition at times after assistance. *Mustahiq* follow-up is important in an effort to achieve the goal of converting people with *mustahiq* status into *muzakki*, especially if the program provided is in the form of economic empowerment assistance which also requires long-term business assistance.

f) The resulting feedback is managed by *Zakat* institutions to produce reports that can be published to the public, especially *muzakki*. The report has a format that can be understood and educates the public that a program can be said to be successful if it meets certain standards. With standard procedures for distributing *Zakat* funds and implementing programs that are clear and known to the public, it can increase the credibility and perception of the institution's capability in the eyes of the community.

g) and 8. The community and *Muzakki* received reports on the distribution of funds along with ongoing actions (follow-up) in an effort to foster *mustahiq*s so that they can live more independently (not become *mustahiq*s) anymore. In this flow, the community will increasingly understand that building humans is not just providing assistance once then there is no follow-up step, but building people needs a process of mentoring and coaching so that they can finally convert *mustahiq* into *muzakki*. In accordance with the nature of *Zakat*.

4.4 Benefits of Using the Block-Chain System

Some of the benefits that we can get by utilizing this technology include the following [6]: Firstly, Wider access to finance: The presence of *Block-Chain* makes access wider because it is able to reach all transactions without being restricted and supervised by third parties. Access speed can also be increased because you use your own server, not a centralized server. Secondly, Business runs become more efficient: *Block-Chain* can serve financial transactions anytime and anywhere without any time and space restrictions. This is especially efficient for businesses that have partners in other parts of the world. Thirdly, Cheap: One of the advantages of using other *Block-Chain* technology is that it is cheaper than conventional banking services. Fourthly, Safe: Every transaction that occurs on the *Block-Chain* can be validated at that time. Existing data can be read by several databases. In addition, the application of a digital signature can also be done to confirm the identity of a person or user who has an account on the *Block-Chain*. The signature can also arrange for permissions to provide data and access history [6].

4.5 The Use of Block-Chain from Technology Acceptance Model (TAM) Analysis

The Technology Acceptance Model is a type of theory that uses a behavioral theory approach to study the process of adoption and adaptation of a person to information technology. The concept of the TAM model predicts how users accept and use the new technology. Namely by observing psychological conditions, such as beliefs, attitudes, interests, and user behavior relationships [11]. The basic purpose of TAM is to provide an explanation of what factors determine the acceptance of technology that are able to explain user behavior [3]. Thus using TAM will be able to explain how the *Zakat* management system procurement project can be accepted by the community at large.

Various studies conducted by researchers have tried to modify TAM by adding new variables to it. Generally acceptance of technology is shown from an opinion on the convenience and usefulness of the new technology [11]. Then TAM is modified by adding the constructs of compatibility, cognitive absorption, and pleasure [3], experience in utilizing technology, self-efficacy, perceived risk and social influence [11]. On the other hand, perceived acceptance must also consider the emotions that are felt in the short and long term, so that users will tend to take advantage of this technology in the long term [1]. In terms of appearance, technology must also be presented in a visual form that is attractive, easy to

understand, and entertaining (increases feelings of pleasure) [4]. That means it must adjust the system presentation technique designed in accordance with the segmentation or characteristics of today's society.

Digital technology, especially if the technology is related to money transactions, must have a sophisticated and guaranteed security system [1]. Design and security are stimuli that represent system capabilities and features, while ease of use and perceived usefulness are organisms that represent motivation to use systems that lead to consumer responses to using the system [1]. The acceptance factor of a technology can come from the user (intrinsic factor) and the system itself (extrinsic factor) [7]. Intrinsic factor means that it emerges from within the individual user, while extrinsic factor means that it is due to environmental factors that encourage users to use information systems [11]. From users can be in the form of cognitive aspects, individual character, personality, individual concerns about the impact of technology. Meanwhile, the system can be in the form of a computer network, the state of the computer, complexity, trust, self-efficacy, social factors, service assurance, internet connection quality, and so on [11].

The main external factors that usually manifest are social factors, cultural factors and political factors [16]. Social factors include language, skills, and conditions for facilitation. Political factors are mainly the impact of technology use in politics and political crises. The attitude to use relates to the user's evaluation of the desire to use certain information system applications. Behavioral intention is a measure of a person's likelihood of using an application [16]. In general, if it turns out that after a study it turns out that the convenience factor for the information system is known to be no convenience, then the usefulness factor will also be invisible. Logically, how can it be useful for users if the information system is difficult to use or not easy to use [11].

Perceptions of usefulness and ease of use will affect attitudes towards the use of information systems and then affect the intensity of use. After that it will affect the actual use of the system. However, this study intends to examine the potential for public acceptance of a more complete openness model of *Zakat* management, so that it does not yet have actual activities. So that the final variable is more directed at increasing the intention to utilize cash *Zakat* facilities online [11]. The using of Block-Chain model will beneficial in two ways: Firstly: Perceived of Usefulness Perception. In Davis (1989) states that "the degree to which a person believes that using a particular system would enhance his or her job performance." This means that users believe that using the library information system will improve its performance. This illustrates the benefits of the system from its users in relation to various aspects. So in this usefulness perception forms a belief for decision making whether to use an information system or not. The assumption is that if the user believes that the system is useful, then of course he will use it, but on the other hand, if he does not believe that it is useful, the answer will definitely not use it [11].

Secondly: Increasing Performance. Several indicators that reflect the perceived usefulness include; accelerating work, increasing performance, increasing productivity, effectiveness, making work easier, and also useful [3] [11]. The final objective of this research is to form a comprehensive *Zakat* management system with the help of the *Block-Chain* system. Thus the perception of the benefits that can only be felt at this time is the existing *Zakat* service facilities; online *Zakat* collection services either through transfers, marketplaces, merchants, or other online systems. Several indicators will be adjusted to the context of the study such as; up to date compilation reporting, neat and valid recording, fast transaction confirmation, fast / efficient transactions. Some of these things are thought to be able to make people willing to give *Zakat* online.

Thirdly: Perceived on Easiness of Use. It is stated that "ease" means "freedom from difficulty or great effort". Furthermore, "ease to use perceived" is defined as "the degree to which a person believes that using a particular system would be free of effort" [3]. If applied to a library information system, it means that the user believes that the library information system is easy to use so that it does not require hard effort and will be free from difficulties. This includes the ease of use of the information system in accordance with the wishes of its users. Davis's research results show that perceived convenience can explain users' reasons for using the system and can explain that the new system can be accepted by users [11]. Details things that are included in the perception of ease of use such as; easy to learn (easy to learn), controllable (controllable), clear and understandable, flexible, easy to be skilled / proficient, and easy to use [11].

4.6 Using Block-Chain Model in *Zakat* Management from Technology Acceptance Model (TAM) View

The following is a roadmap of a thought formula to test the potential acceptance of a block chain-based *Zakat* management system in Indonesia.
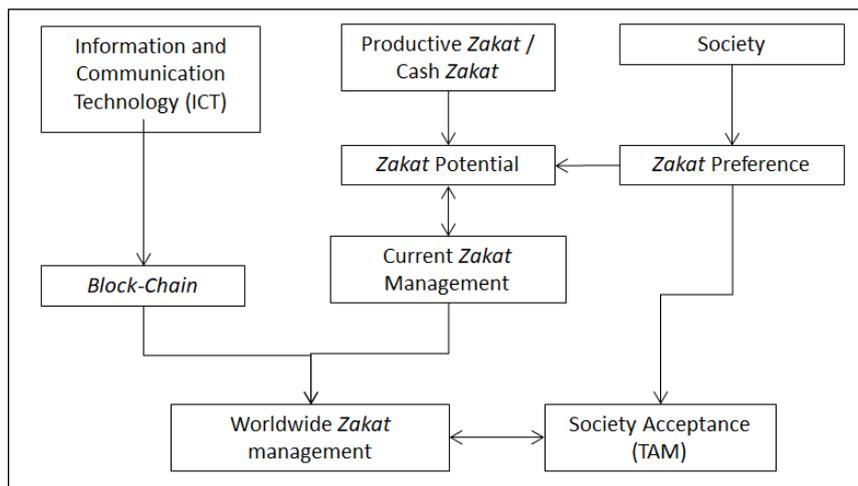

Fig. 2. Technology Acceptance Model Framework: Worldwide *Zakat* through *Block-Chain* System

Block-Chain makes use of consensus, the condition that is reached when all the participants in the network agree on the validity of a transaction by noting that what the computer records in big data matches each other. *Block-Chain* will be publicly visible (open source) like a bank ledger that records all customer transactions. Because it can be seen in general, the possibility of fraud can be minimized. The technology can also be used for other contract-based agreements, and works in such a way that no single entity is controlling the transactions - because everyone controls every transaction. And with this database system technology, all user transactions can be recorded in blocks which are protected with complex passwords.

5 Conclusion

The study on *Zakat* management by using Block-Chain technology can be concluded as follows:

a) The use of ICT in *Zakat* management will increase people support for paying *Zakat*. The use of ICT in *Zakat* management will increase people's intention to use the system and it is the most important factor, then followed by intention of people to recommend others, intention to support this agenda is third rank, and people feel easy to use and perceived value are number five and six. Last but not least people consider *Zakat* management by using ICT is an efficient way.

b) *Zakat* institutions using block-chain technology will increase the value of institution in terms of: first, credibility of the *Zakat* institutions. Second, will increase accountability so people want to pay *Zakat*, thirdly, transparency, it will encourage people and increase their belief to the *Zakat* institution. Last but not least, trust, it will increase people trust to the *Zakat* institutions. Therefore, using sophisticated technology i.e. Block-Chain is needed. The result also revealed that credibility is the most factors, and followed by accountability, transparency, and trust.

c) The Block-Chain Model in *Zakat* management that has been developed will make close relationship between *Zakat* payer (muzakki), the benefeceries of *Zakat* (mustahiq) and *Zakat* institutions, and also society will be easy to monitor the use of *Zakat*. Besides, the benefit of using Block-Chain in *Zakat* make wider (arround the world) access to finance globally, Business runs become more efficient, Cheap, and Safe.

d) In term of TAM (Technology Acceptance Model) the using of Block-Chain in *Zakat* management will facilitate in three ways, namely; Perceived of Usefulness Perception, Increasing Performance and Perceived on Easiness of Use.

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