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Smart Zakat System Based on Big Data and Artificial Intelligence for Optimizing the Distribution of ZIS Funds (Zakat, Infaq, and Sadaqah) in Indonesia

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Abstract

Introduction: The effectiveness of zakat distribution is still a major challenge in Islamic Social Finance (ISF), especially in ensuring the accuracy of mustahik targets and the fairness of fund allocation. Although digital transformation has increased the efficiency of collection and transparency of zakat management, its use in the distribution system is still limited and has not been optimally integrated. This research aims to develop a Smart Zakat System based on Big Data and Artificial Intelligence to optimize the distribution of ZIS (Zakat, Infaq, and Sadaqah) funds in Indonesia. **Research Methods:** This study uses a qualitative approach through Systematic Literature Review (SLR) to synthesize previous studies and identify the main components in the data-based zakat distribution system. **Results:** The results of the study show that a data-based zakat distribution system requires three main components, namely digital data infrastructure, an analytical system, and an intelligent distribution mechanism. Based on these findings, this study proposes a conceptual model consisting of three layers, namely *the Data Input Layer, the Analytics Engine Layer,* and *the Smart Distribution Layer,* which is equipped with a *feedback loop* mechanism to support an adaptive and sustainable system.

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INTRODUCTION

Zakat is a strategic instrument in the Islamic Social Finance (ISF) system that functions not only as an obligation of worship, but also as a mechanism for wealth redistribution and poverty alleviation. In the Indonesian context, the potential of national zakat is very large, but the effectiveness of the distribution of zakat funds still faces various challenges, such as the inaccuracy of mustahik targets, limited integration of beneficiary data, and weak data-based decision-making systems (BAZNAS, 2023). This indicates that the challenge of contemporary zakat management is no longer limited to the aspect of collection, but also to the effectiveness of distribution which requires accuracy of targets, efficiency, and fairness in distribution (Ascarya & Yumanita, 2018).

The development of digital transformation has encouraged the modernization of zakat governance through sharia fintech, digital payment platforms, and application-based zakat information systems (Verhoef et al., 2022; Vial, 2019). Various studies show that digitalization contributes to increasing the collection efficiency, transparency, and accountability of zakat institutions (BAZNAS, 2022; Kasri & Putri, 2018). Although digital transformation has increased efficiency and transparency, its implementation is still dominated by operational functions, especially in the aspect of fundraising. The use of technology as a basis for decision-making in the distribution of zakat has not developed adequately (BAZNAS, 2022). In the global context, strengthening zakat is also part of the development of Islamic Social Finance as an instrument of sustainable development (Ardıç et al., 2011) (UNDP, 2020)

In line with these developments, the use of Big Data and Artificial Intelligence is beginning to be seen as a strategic approach in strengthening data-based zakat management.

Nevertheless, the application of Big Data and Artificial Intelligence has grown widely in various sectors, including finance and business, and has begun to be adopted in several Islamic Social Finance practices such as waqf management and data-based social programs. However, its use in zakat management is still limited and has not been systematically integrated, as shown by the dominance of research in the aspect of collection compared to data-based distribution (BAZNAS, 2022; Kasri & Putri, 2018).

This technology has the potential to improve the accuracy of mustahik identification, distribution prioritization, and efficiency of ZIS funds through a data-driven decision-making approach (Khan & Al-Harby, 2022). However, previous studies generally still discussed zakat digitization, sharia fintech, and data analytics separately. Research that integrates digital transformation as a data source, as well as the use of Big Data and Artificial Intelligence in the zakat distribution system is still very limited. In addition, there have not been many studies that have developed a zakat distribution model based on predictive analytics as a decision support system. This gap shows that there is a research space that has not been widely developed in the ISF literature.

Based on these gaps, this study offers three main contributions. First, integrating digital transformation with the use of Big Data and Artificial Intelligence in one zakat management system. Second, shifting the focus of zakat digitization from a collection orientation to data-based distribution. Third, introducing the concept of Smart Zakat System as a zakat

distribution system based on Big Data and Artificial Intelligence to improve the accuracy of targets, efficiency, and fairness of zakat distribution. The novelty of this research lies in the development of an integrative model that connects digital data sources, Big Data and Artificial Intelligence-based analytical processes, and zakat distribution decision-making systems in one integrated conceptual framework.

Based on these contributions, this research aims to develop a Smart Zakat System based on Big Data and Artificial Intelligence to optimize the distribution of ZIS funds in Indonesia. This research does not aim to test the model empirically, but rather to develop a conceptual model based on literature synthesis to bridge the gap between digital transformation and data-based zakat distribution. Theoretically, this research contributes to the development of ISF through a data- and technology-based decision-making approach. Practically, the proposed model is expected to be a reference for zakat management institutions in developing a zakat distribution system that is more adaptive, integrated, and on target in the era of digital transformation.

RESEARCH METHOD

Research Design

This research uses a qualitative approach with *conceptual research* design (Gilson & Goldberg, 2015; Jabareen, 2009) through the Systematic Literature Review (SLR) method to develop a Smart Zakat System model based on Big Data and Artificial Intelligence in optimizing the distribution of Zakat, Infaq, and Sadaqah (ZIS) funds. This approach was chosen because it allows for a systematic synthesis of existing knowledge while supporting the development of new conceptual models (Denyer & Tranfield, 2009; Keshri & Jagnoor, 2021; Snyder, 2019). This research is conceptual and is not directed at quantitative meta-analysis, but at the integration of concepts for model development.

In this study, Systematic Literature Review (SLR) is not only used to identify, evaluate, and synthesize previous research findings, but also becomes the basis for building conceptual models through thematic synthesis and conceptual model building approaches.

Data sources and search strategies

The research data is in the form of secondary data obtained from reputable scientific articles through the Scopus database, Web of Science, Dimensions, and Google Scholar as complementary sources. The use of multi-databases is carried out to expand the scope of the literature and minimize search bias.

The search strategy uses Boolean search strings with the field code TITLE-ABS-KEY, utilizing Boolean operators (AND, OR), truncation (*), and proximity operators to improve search sensitivity and precision(Bramer et al., 2018; Gusenbauer & Haddaway, 2020).

The main queries used are:

TITLE-ABS-KEY(
(Zakat OR "Zakat Management" OR "Digital Zakat")
AND
("*Big Data Analytics*" OR "data analytics")
AND
("digital transformation" OR fintech)
AND
("Artificial Intelligence" OR "*Machine learning*"))

Supporting queries used to expand the scope of the literature are:

TITLE-ABS-KEY(
("ISF" OR zakat OR waqf)
AND
("*Big Data Analytics*" OR "predictive analytics"))

The second supporting query is as follows:

TITLE-ABS-KEY(
(zakat W/3 distribut*)
AND (smart OR predictive)
AND (model* OR framework*))

The search was limited to articles for the year 2015–2025, types of scientific articles (articles), peer-reviewed articles, and English-language articles.

Literature Selection Procedure

Literature selection was carried out using the PRISMA 2020 guidelines through four stages: identification, screening, eligibility, and inclusion.

At the identification stage, 120 articles were obtained from all databases. After the removal of 22 duplicate articles, a total of 98 articles were selected by title and abstract, with 40 articles eliminated as irrelevant.

The full-text evaluation stage was carried out on 58 articles. A total of 26 articles were eliminated because they were not conceptually relevant, the discussion of zakat analysis was limited, or did not meet the standards of scientific publications.

In addition, the quality of the article was evaluated based on criteria that included topic relevance, methodological clarity, and contribution to zakat study and data analysis (Kitchenham, 2007; Petticrew & Roberts, 2006).

In the final stage, a total of 32 articles were included in the synthesis. This number of studies was considered adequate to achieve conceptual saturation, where no significant new themes were found in the synthesis process.

The flow of literature selection is presented in Figure 1.

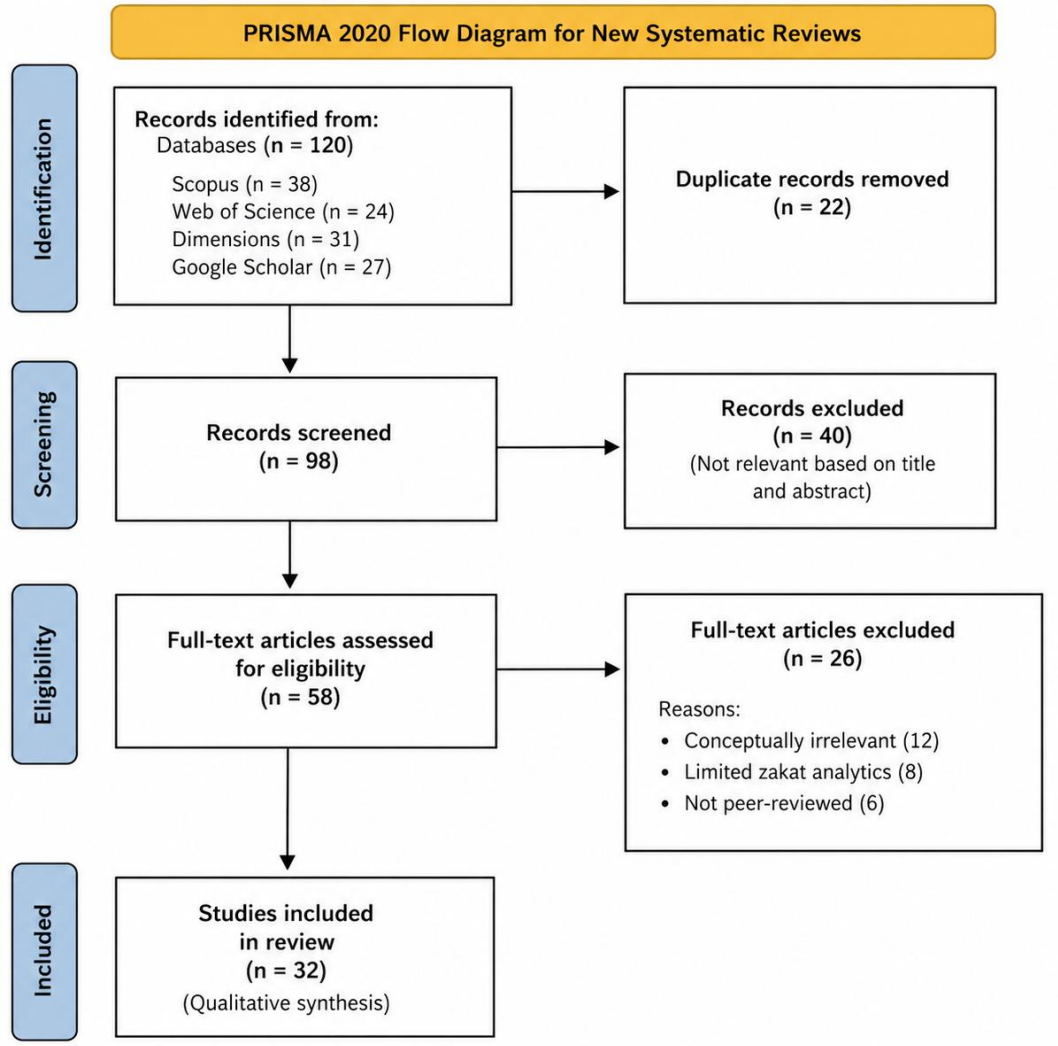


Figure 1: PRISMA Flow Diagram of the Literature Review Selection Process

Data Analysis

The selected data were then analyzed using a *thematic synthesis approach* (Thomas & Harden, 2008) through three stages, namely (1) *Initial coding*, to identify the main concepts of each study; (2) *Descriptive theme development*, to group themes and patterns of relationships between concepts; (3) Analytical theme generation, to produce conceptual synthesis as the basis for model development. The coding process is carried out by grouping research findings based on the focus of the study, technological approach, and contribution to the distribution of data-based zakat (Braun & Clarke, 2006).

Through this process, three core themes were obtained, namely: (1) Digital transformation as a source of data (input data); (2) Big Data as an analytical engine; (3) Intelligent distribution system as an output for optimizing the distribution of ZIS funds. These themes are the basis for the formation of the Smart Zakat System conceptual model.

Conceptual Model

The conceptual model is developed using the conceptual model building approach (Jabareen, 2009) through four stages: (1) Identification of the main concept; (2) Integration of relationships between concepts; (3) Model construction; (4) Formulation of Smart Zakat System.

The resulting model illustrates the relationship between digital transformation, the use of Big Data and Artificial Intelligence, and the optimization of ZIS fund distribution.

Validity and limitations of the study

To increase the credibility of the conceptual model, this study uses validity and is strengthened through the process *of cross-study comparison* and consistency of interpretation between the themes of the synthesis results, cross-study comparison, and consistency between the themes of the synthesis results.

However, this study is limited to indexed articles and does not include grey literature, so the synthesis results have the potential to not fully capture the practice of digital zakat management in the field.

RESULT AND DISCUSSION

1. Synthesis of Literature from Previous Research

Based on 32 articles that passed the PRISMA selection process, three main clusters of studies were obtained that dominated previous research (Tranfield et al., 2003)**,** namely: (1) digital transformation in zakat management, (2) the use of Big Data and Artificial Intelligence in ISF, and (3) data-based decision-making approaches in zakat distribution. The literature synthesis shows that the majority of research still focuses on digitizing zakat collection, while studies that integrate data analytics to support zakat distribution are still relatively limited.

These findings indicate that there is an inequality in the direction of the development of zakat technology, where innovation is more directed at increasing collection than optimizing distribution. This shows that the use of technology in zakat management has not been fully directed to the redistributive function which is the main essence of zakat.

To clarify the pattern of these findings, a synthesis of previous research is presented in Table 2 below:

Table 2. Synthesis of Literature Based on Theme Clusters

Cluster	Study Focus	Key Findings	Study Limitations	Research Gap
Digital Transformation	Digital zakat, fintech,	Improve collection	Focus on fundraising, not	Not yet supporting data-

	information systems	efficiency and transparency	yet touching distribution	based zakat distribution
Big Data & AI	Predictive analytics, *Machine learning*	Improve the accuracy *of mustahik targets* and results	Implementation is still partial	Not yet integrated in the distribution system
Smart Distribution	*Decision Support System (DSS),* AI-based allocation	More efficient and adaptive distribution	Still conceptually limited	No integrated model yet

Source : Author's synthesis based on reviewed literature

Based on Table 2, it can be seen that technological development in zakat management is still fragmented. Digital transformation is more focused on the collection aspect, while the use of Big Data and Artificial Intelligence has not been systematically integrated in the distribution process. On the other hand, data-driven distribution approaches are still partial and have not been supported by a comprehensive conceptual model.

These findings confirm the gap between technological developments and their implementation in zakat distribution, especially in the integration between data, analytics, and decision-making. Therefore, a model is needed that is able to integrate data sources, analytical processes, and distribution mechanisms in one complete system. This gap is the basis for the development of the Smart Zakat System in this study.

2. Digital Transformation in Zakat Management

The results of the synthesis show that digital transformation has become an important foundation in modernizing zakat management. The use of sharia fintech, digital zakat applications, payment gateways, and zakat information systems has increased collection efficiency, management transparency, and ease of service for muzakki (Kasri & Putri, 2018; Suryani & Fitriani, 2022; BAZNAS 2022).

In the Indonesian context, the practice of digitizing zakat has begun to be implemented by several zakat management institutions, such as BAZNAS and Dompet Dhuafa, which utilize digital systems for fund collection, muzakki database management, and distribution reporting (BAZNAS, 2022). However, the use of this technology still focuses on operational aspects and has not developed into an analytical system that supports data-driven distribution decision-making.

However, based on the synthesis of literature in this study, the current development of zakat digitization is still predominantly *fundraising-oriented digitalization,* while the use of technology to support data-based zakat distribution has not developed optimally.

This indicates that digital transformation in zakat management is still at the stage of digitizing the process, not yet reaching the stage of data-based strategic transformation. In fact, in the context of modern zakat management, digital transformation should not only be understood as a digital payment ecosystem, but also as a data infrastructure that is able to support mustahik identification, determination of distribution priorities, and evaluation of the effectiveness of zakat distribution in a more systematic manner.

Thus, there is a need to shift the orientation of digital transformation from just digitizing services to developing a data-based zakat distribution system. This shift is an essential prerequisite in building a zakat management system that is more adaptive, on target, and fair.

3. The Role of *Big Data Analytics* in ZIS Distribution

Based on the results of the synthesis, the use of Big Data and Artificial Intelligence has strategic potential in increasing the effectiveness of ZIS fund distribution (Davenport & Ronanki, 2018; McAfee & Brynjolfsson, 2012; Wamba, 2015) especially through more accurate identification of mustahik, prediction of beneficiary needs, and more objective allocation prioritization.

The data-based approach allows zakat institutions to shift from a reactive distribution pattern to a more predictive and needs-based distribution. In this context, Artificial Intelligence and *Machine learning* function as analytical systems that are capable of processing data at scale to produce more precise distribution recommendations.

These findings indicate that the use of Big Data in zakat management is still partial and has not been integrated as a comprehensive decision-making system. Therefore, an approach that is able to integrate data, analytical processes, and distribution decisions in one complete system is needed.

In this context, Big Data and Artificial Intelligence not only function as data processing instruments, but also as the foundation in building a data-driven distribution system. This perspective is a conceptual foothold for the development of the Smart Zakat System proposed in this study.

4. *Proposed Smart Zakat System Model*

Based on the thematic synthesis, this study proposes the Smart Zakat System as a model that integrates digital transformation, the use of Big Data and Artificial Intelligence, as well as the zakat distribution system in one structured framework. This model was developed to overcome fragmentation in zakat management, especially the separation between data sources, analytical processes, and distribution decisions that have not been systematically integrated.

This model consists of three main layers.

(1) *Data Input Layer*

The first layer is a data source that includes muzakki data, mustahik data, socio-economic data, geospatial data on poverty, and digital zakat transaction data.

Although these various types of data have great potential in supporting a data-based zakat distribution system, their implementation in Indonesia still faces a number of challenges. One of the main challenges is the lack of data standardization between zakat institutions, which causes differences in the format, structure, and definition of muzakki and mustahik data. This condition makes it difficult to integrate data across institutions and hinders the establishment of a comprehensive database.

In addition, data quality is also an important issue, especially related to the completeness, accuracy, and consistency of data. Therefore, systematic data validation and cleansing mechanisms are needed, such as verification of mustahik data based on poverty criteria, deletion of duplicate data, and periodic data updates. Integration with external data sources, such as national socioeconomic data and geospatial data on poverty, also requires standard synchronization and system interoperability.

Thus, strengthening the Data Input Layer does not only depend on the availability of data, but also on quality, standardization, and data integration capabilities which are the main foundation in supporting analysis and decision-making for effective zakat distribution.

At this layer, digital transformation acts as an infrastructure that not only collects data, but also integrates various previously dispersed data sources. As such, this layer is the foundation for providing comprehensive and relevant data to support the analytics process.

(2) ***Analytics Engine Layer***

The second layer is the core of the system that utilizes Big Data and Artificial Intelligence as analytical engines. The main components of this layer include data collection, data processing, predictive analytics, *machine learning* scoring, and *Decision Support System (DSS).*

In this context, the analytical approach used can include machine learning techniques such as classification to group mustahik based on the level of need, clustering to identify region-based poverty patterns, and regression to predict assistance needs based on socioeconomic variables. This approach allows the system to produce a priority score or scoring system for each prospective zakat recipient.

The results of the analytical process are then interpreted in the form of more operational recommendations, such as a list of mustahik priorities, the level of urgency of assistance, and distribution allocations adjusted to socio-economic conditions. Thus, the Decision Support System in this model functions as a link between the results of Artificial Intelligence-based analytics and the decision-making process that can be understood and used by zakat managers practically.

At this stage, the system processes data into strategic information that produces mustahik classification, distribution priorities, and recommendations for zakat allocation in a more objective manner. Thus, the main function of this layer is to transform the data into a more precise distribution decision-making basis.

(3) ***Smart Distribution Layer***

The third layer is the output of the system that reflects the implementation of data-based zakat distribution. The outputs produced include *the determination of mustahik* targets that are more on target, increasing distribution efficiency, transparency and accountability, and more equitable distribution of zakat.

To measure the effectiveness of the zakat distribution system, this model uses several key performance indicators (KPIs), including the level of accuracy of mustahik targets, which can be measured through the suitability between zakat recipients and poverty criteria; distribution efficiency, which is reflected in the speed and cost of distribution; as well as the level of equitable distribution between regions or mustahik groups.

In addition, aspects of distribution justice can be evaluated through indicators such as the proportion of distribution to priority mustahik groups, the level of reduction of aid gaps between regions, and the consistency of needs-based distribution. These indicators allow for a more objective evaluation of the performance of data-based zakat distribution.

The *feedback loop* mechanism in this model acts as a *continuous learning system,* where distribution data, such as distribution realization, changes in essential conditions, and program evaluation, will be returned to the system as new input data. The data is then used to update the analytical model, including priority weight adjustments, mustahik classification updates, and improved accuracy of needs predictions. Thus, the system is not static, but adaptive to the dynamics of socioeconomic conditions.

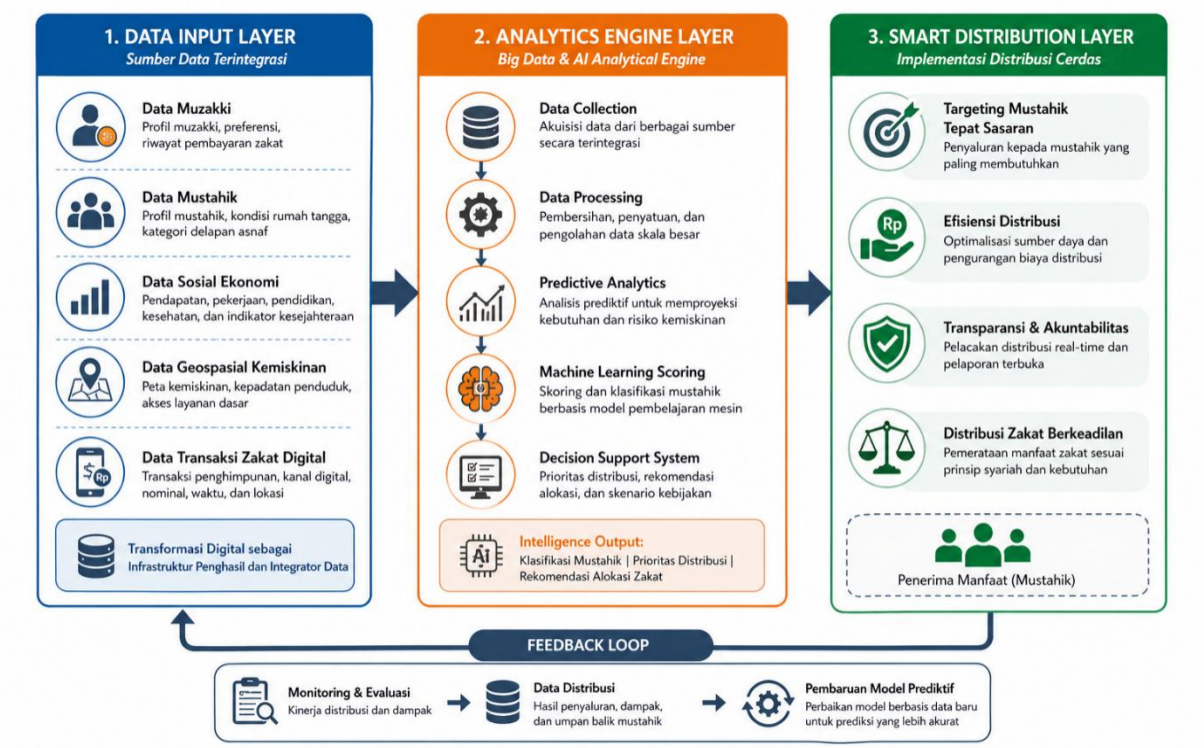
The model proposed in this study has advantages over the previous approach because it not only places technology as an operational tool, but as a integral component of the zakat distribution decision-making system. In contrast to the digital zakat model which generally focuses on collecting or digitizing services, this model integrates data sources, analytical processes, and distribution decisions in one integrated system framework.

Thus, the Smart Zakat System not only improves the efficiency of zakat management, but also allows for a more adaptive, needs-based, and more targeted distribution process. The integration between Big Data and Artificial Intelligence in this model makes the system able to produce more precise distribution recommendations than conventional approaches that are still manual and reactive.

The three layers in this model do not stand apart, but form a systemic flow that connects data, analysis, and decisions in an ongoing manner. This model is not

intended as a technical system, but as a conceptual framework for the development of a data-based zakat distribution system.

The conceptual model of the Smart Zakat System proposed in this study can be seen in Figure 2.



Gambar 2. Model Konseptual *Smart Zakat System* Berbasis Big Data dan *Artificial Intelligence*

Figure 2 shows that the integration between input data, analytical processes, and distribution systems forms an interconnected flow through a *feedback loop* mechanism. This allows the system to be continuously updated based on previous distribution results, thus supporting more adaptive and sustainable decision-making.

Compared to existing approaches, the Smart Zakat System model offers comparative advantages in terms of system integration. Most of the current development zakat management models still focus on digitizing services, such as fundraising and reporting, without integrating analytical processes as the basis for distribution decision-making. In addition, some of the data-driven approaches that have been proposed in the literature tend to be partial, for example emphasizing only the identification of mustahik or needs analysis, without linking them to the distribution system as a whole.

In contrast to this approach, the Smart Zakat System integrates three main components, namely digital data sources, Big Data and Artificial Intelligence-based analytics processes, and zakat distribution systems in one integrated framework. This integration allows the zakat distribution process to be not only administrative, but also based on systematic and continuous analytical recommendations. Thus, this model

not only improves operational efficiency, but also strengthens the quality of decision-making in the distribution of zakat.

In addition, the existence of a feedback loop mechanism makes this model adaptive, which distinguishes it from conventional approaches that tend to be static. This system allows for continuous data updates and adjustment of distribution decisions based on the dynamics of mustahik conditions. Therefore, the Smart Zakat System offers a more comprehensive approach than the existing zakat digitization model.

This model also shows a paradigm shift from administration-based zakat management to a *data-driven distribution system*.

5. Theoretical and Practical Implications

Theoretically, this study emphasizes that the development of technology in zakat management needs to shift from simply digitizing services to strengthening data-based decision-making systems (Lv et al., 2024; Zuboff, 2015). The proposed Smart Zakat System model expands the study of Islamic Social Finance by placing Big Data and Artificial Intelligence as core elements in the integration between data, analysis, and zakat distribution. Thus, this research makes a conceptual contribution to the development of a system-based distribution approach, not just based on service digitization.

Practically, this model provides an operational framework for zakat management institutions, such as BAZNAS and other amil zakat institutions, in developing a data-based zakat distribution system. This model can be implemented in the form of a more accurate mustahik target determination system, need-based distribution prioritization, and evaluation of the effectiveness of zakat distribution in a sustainable manner through a feedback loop mechanism. This model shows that a data-based distribution system not only increases efficiency, but also supports transparency, accountability, and fairness in zakat management.

The implementation of this model can be carried out in stages according to data readiness, technological infrastructure, and institutional capacity. In the initial stage, zakat institutions can focus on integrating muzakki and mustahik data as part of the Data Input Layer, then continue with the development of simple analytics to support classification and distribution priorities. Furthermore, the system can be developed towards the use of advanced analytics based on Big Data and Artificial Intelligence to support more comprehensive distribution decision-making. With this approach, the Smart Zakat System model is flexible and can be adapted according to the scale and capacity of each zakat institution.

CONCLUSION

This study concludes that the development of digital transformation in zakat management has not been fully accompanied by the strengthening of data-based distribution systems. Existing digitalization practices are still predominantly oriented

toward fundraising and operational efficiency, while the utilization of Big Data and Artificial Intelligence in supporting zakat distribution decision-making remains limited and fragmented. As a result, the integration between digital data sources, analytical processes, and distribution decisions has not yet been systematically developed in zakat management institutions.

Based on the synthesis of previous studies, this research proposes the Smart Zakat System as a conceptual model that integrates three main components, namely the Data Input Layer, Analytics Engine Layer, and Smart Distribution Layer. Through the integration of digital data infrastructure, predictive analytics, machine learning, and Decision Support Systems (DSS), the proposed model is expected to support more adaptive, accurate, efficient, and equitable zakat distribution.

Theoretically, this study contributes to the development of Islamic Social Finance literature by emphasizing the importance of shifting zakat management from service digitization toward data-driven distribution systems. Practically, the proposed model provides a conceptual and operational framework that can guide zakat institutions in developing more integrated and data-oriented distribution systems.

Nevertheless, this study is conceptual in nature and has not been empirically tested. Therefore, further studies are needed to examine the implementation and effectiveness of the Smart Zakat System in real institutional contexts, particularly in relation to data integration, technological readiness, institutional capacity, and the use of Big Data and Artificial Intelligence in zakat distribution decision-making.

LIMITATIONS AND FURTHER RESEARCH DIRECTIONS

This research has several limitations that need to be considered. First, this research is conceptual and has not been empirically tested, so the validity of the proposed model still requires further testing in the context of real implementation in zakat management institutions. Second, the analysis in this study is based on a synthesis of literature that is limited to indexed articles, so it may not fully represent the practice of digital zakat management that has developed in the field.

In addition to conceptual limitations, the implementation of the Smart Zakat System model in Indonesia also has the potential to face a number of practical challenges. In terms of costs, the development of technology infrastructure, Big Data and Artificial Intelligence-based analytics systems, and investment in human resources require significant funding support. In terms of human resources, the limitation of experts in the field of data analytics and information technology at zakat institutions is a challenge in adopting this system optimally.

In addition, regulatory and policy aspects can also be obstacles, especially related to the management and integration of cross-agency data and personal data protection. Resistance to change, both from within the organization and from external parties such as muzakki and mustahik, also has the potential to affect the adoption process

of this data-based system. Therefore, the implementation of the Smart Zakat System requires a gradual approach that not only considers technological readiness, but also institutional, regulatory, and social aspects.

Further research can also use a case study approach in zakat management institutions, such as BAZNAS or other amil zakat institutions, through data collection methods such as interviews, observations, and analysis of institutional documents. This approach allows for contextual model testing and provides a deeper understanding of the implementation of a data-based zakat distribution system in the field.

Empirical testing of this model requires the collection of more specific data, such as mustahik profile data (income level, socioeconomic conditions, geographical location), historical data on zakat distribution, and zakat program performance data. In addition, digital transaction data and muzakki interaction data can also be used to analyze collection and distribution patterns more comprehensively.

Therefore, further research is recommended to test the Smart Zakat System model empirically, both through quantitative approaches and case studies on zakat institutions. In addition, research development can be directed at the integration of this model with existing zakat information systems, as well as testing the effectiveness of the use of Big Data and Artificial Intelligence in increasing the accuracy of zakat distribution targets.

Author Contributions

Conceptualization: Maula Nasrifah
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Data curation: Maula Nasrifah, Muhammad Lathoif Ghozali
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Writing – review and editing: Maula Nasrifah

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Declaration of Generative AI and AI-Assisted Technologies in the Writing Process

During the preparation of this manuscript, the authors used ChatGPT for language editing or grammar checking.

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There is no conflict of interest regarding the publication of this manuscript.

Ethics Approval and Consent to Participate
Ethical approval was not required for this study because it used a SLR research.

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