



Digitalisation of Islamic Finance in the Era of Industrial Revolution 5.0: The Contribution of Crowdfunding and e-Wakaf to Islamic Fintech

Heru Wahyudi^{1*}, Iwan Wisandani², Cheri Saputra³, Winda Rika Lestari⁴, Sandra Mei Leny¹

¹Faculty of Economics and Business, University of Lampung, Indonesia, ²Islamic Economics Programme, University of Siliwangi, Indonesia, ³Faculty of Education and Teacher Training, University of Lampung, Lampung Indonesia, ⁴Faculty of Economics and Business, Informatics and Business Institute Darmajaya, Indonesia. *Email: heru.wahyudi@feb.unila.ac.id

Received: 01 September 2024

Accepted: 30 December 2024

DOI: <https://doi.org/10.32479/ijefi.17480>

ABSTRACT

This study analyses the contribution of digitalisation in Islamic finance through the application of Islamic crowdfunding and e-wakaf instruments in supporting the development of Islamic fintech in Indonesia, especially in the era of the Industrial Revolution 5.0. Digitalisation in the Islamic finance sector plays a strategic role in expanding access to financial inclusion and facilitating more effective community involvement in sharia-based economic activities. Using the robust least squares (RLS) method, this study utilises secondary data for the period 2018-2023 to evaluate the impact of Islamic crowdfunding and e-wakaf on the growth of Islamic fintech. The results show that Islamic crowdfunding significantly expands access to alternative funding, especially for small and medium enterprises (SMEs), while e-wakaf improves transparency and efficiency of waqf asset management through digital technology. These two instruments simultaneously contribute positively to the strengthening of the Islamic fintech ecosystem in Indonesia, creating a strong foundation for broader and sustainable financial inclusion. The findings provide important perspectives for the development of innovative policies and strategies in advancing the Islamic financial sector in the digital era.

Keywords: Digitalisation of Islamic Finance, Islamic Crowdfunding, e-Wakaf, Islamic Fintech, Industrial Revolution 5.0

JEL Classifications: G21, O16, E44, D14

1. INTRODUCTION

The Industrial Revolution 5.0 era has changed the paradigm of the global economy, where digital technology plays an important role in facilitating innovation and interaction between humans and machines (Zahra and Ameer, 2023). The era of the Industrial Revolution 5.0 is characterised by a harmonious integration between humans and machines that not only promotes efficiency and productivity, but also emphasises human values and sustainability (Sidiq and Shihab, 2023). In this context, the Islamic finance sector, which operates based on Islamic sharia principles, is at the intersection of technological innovation and social responsibility (Hossain and Ali, 2022). With a Muslim population of more than 1.8 billion worldwide, including more than 270 million in Indonesia, the digitalisation of Islamic finance

has significant potential to transform the economic landscape (Irfan and Iqbal, 2023).

Digitalisation of Islamic finance acts as an important pillar in driving financial inclusion, with various instruments such as crowdfunding and e-wakaf (Ahmed and Raza, 2023). Islamic crowdfunding offers an innovative funding alternative, allowing individuals and small businesses to access financial resources without going through conventional financial institutions (Mansur and Yusof, 2023). This initiative is in line with the goals of community empowerment, reducing inequality, and improving people's welfare (Haneef and Sadeq, 2023). Based on the Sharia Economic and Financial Review Report published by Bank Indonesia, there has been significant growth in crowdfunding over the past few years, indicated by an increase in the number of

projects and total funds raised, reflecting public interest in more transparent and participatory funding methods (Bank Indonesia, 2023).

On the other hand, e-wakaf introduces a modern solution in waqf management which is an important social instrument in the tradition of Muslim societies (Hassan and Ali, 2023). By utilising digital technology, e-wakaf can improve efficiency and transparency in the management of waqf assets, allowing waqifs to contribute more directly to beneficial projects (Latif et al., 2023). A Bank Indonesia report shows that waqf assets in Indonesia have significant potential. However, the utilisation of these assets is still relatively limited (Bank Indonesia, 2023). The adoption of e-wakaf is expected to optimise asset management so as to provide greater social impact (Mohamad and Rahman, 2023).

The Industrial Revolution 5.0 also encourages a paradigm shift in investing and participating in philanthropic activities (Zainal and Hassan, 2023). Islamic crowdfunding not only allows investors to choose projects that comply with sharia values, but also provides returns that are in line with sharia principles (Ali and Noor, 2023). Thus, crowdfunding is not just a funding alternative, but also a platform for individuals to contribute to social and economic development (Siddiqi and Nasir, 2023). Meanwhile, e-wakaf provides an opportunity for individuals to engage in charitable activities more effectively by utilising technology to support sustainable social initiatives (Rashid and Hamid, 2023).

Research examining the contribution of crowdfunding and e-wakaf to Islamic fintech in Indonesia is minimal. Most of the existing studies are descriptive and do not investigate the key factors that influence the acceptance and growth of these two instruments. Therefore, this study aims to analyse how crowdfunding and e-wakaf can contribute to driving the growth of Islamic fintech, taking into account the social, economic and technological dimensions. Thus, the results of this study will not only contribute to the development of literature in the field of Islamic fintech, but also be a valuable source of information for stakeholders, including regulators, financial institutions, and society at large, in utilising digital technology to achieve better social and economic goals.

2. LITERATUR REVIEW

2.1. Sharia Crowdfunding

Crowdfunding is an important instrument in fundraising, especially for small and medium enterprises (SMEs) in developing countries (Sulaiman and Ahmad, 2023). Sulaiman and Ahmad (2023) highlighted that Islamic crowdfunding provides an alternative that complies with Islamic values, where funding is done without interest. This model allows individuals and groups to contribute to projects creating stronger social ties among investors (Jamal and Shah, 2023). Hafez et al. (2023) pointed out that Islamic crowdfunding can play a role in raising public awareness about ethical and responsible investment. By utilising digital platforms, crowdfunding makes it easier for entrepreneurs to access the funds they need, while investors can diversify their portfolios in a Shariah-compliant manner (Nawawi and Hashim, 2023). The utilisation of digital technology in Islamic crowdfunding platforms

not only accelerates the financing process, but also strengthens social and economic engagement, making it a more efficient and effective instrument in the Islamic fintech ecosystem (Zulkifli et al., 2023).

2.2. e-Wakaf

e-Wakaf is one of the significant innovations in waqf management, utilising technology to improve efficiency and transparency in the collection and distribution of waqf funds (Nurdin et al., 2023). Nurdin et al. (2023) note that e-Wakaf can overcome traditional challenges in waqf management by providing a digital platform that facilitates donation and supervision of the use of funds. This is in line with the goals of Industrial Revolution 5.0, which emphasises the importance of transparency and accountability in all aspects of economic activity (Sari and Putra, 2023). Research by Yusuf and Majid (2022) shows that e-Wakaf not only expands the reach of beneficiaries, but also allows the community to more actively participate in social programmes that comply with sharia principles (Khalid and Ahmad, 2023).

2.3. Synergy between Crowdfunding and e-Wakaf in the Islamic Fintech Ecosystem

The integration between crowdfunding and e-Wakaf in the Islamic fintech ecosystem creates significant synergistic opportunities (Hassan et al., 2023). Hassan et al. (2023) noted that collaboration between these two instruments can strengthen the funding ecosystem that focuses on achieving social goals. By utilising blockchain technology, crowdfunding and e-Wakaf transactions can be made secure, transparent and verified, which in turn increases public trust in both instruments (Khan and Iqbal, 2024). Mufid et al. (2024) showed that combining crowdfunding and e-Wakaf not only provides alternative financing for social projects but also creates room for innovation in fund management. This approach strengthens community participation in supporting projects that have a positive impact, both socially and economically (Azhar and Munir, 2024). Thus, this synergy supports the development of more inclusive and sustainable Islamic finance, in line with the principles of Industrial Revolution 5.0.

3. RESEARCH METHODS

3.1. Classical Assumptions

The classical assumption test is a series of tests conducted to ensure that the regression model used fulfils the basic assumptions to obtain an unbiased, consistent, and efficient estimate of the model parameters by going through tests of normality, multicollinearity, heteroscedasticity, and autocorrelation (Khan et al., 2023).

3.2. Outlier Detection

Outlier data is observation data that is far (extreme) from other observations. In this study, outlier detection is performed using the Actual, Fitted, and Residual Graph as a visual method to identify observations that significantly deviate from the general pattern of the data. This graph plots the fitted values (model predictions) and residuals (the difference between actual and predicted values) against the actual values, in order to evaluate the distribution and pattern of deviations between observations and the resulting regression model. In the Actual against Fitted graph, outliers

are identified as points that are far from the diagonal line which represents a perfect fit between the actual values and the model predictions. Meanwhile, on the Residual against Fitted graph, the outlier appears as a point with a large residual, which significantly deviates from the zero line, indicating a noticeable difference between the actual and predicted values. This approach provides an initial indication of the presence of an outlier, which can then be further verified through quantitative statistical tests such as leverage or DFFITS to ascertain its impact on the regression estimates. The use of this combination of visual and quantitative methods is expected to produce a model that is more robust and resistant to the influence of outliers, thus supporting the validity of the research results (López and González, 2023).

3.3. Robust Least Square

Robust regression is a method used to overcome the outlier problem (Delaunay and Yurova, 2024). In this study, the robust least squares (RLS) method is applied as an alternative to overcome the limitations inherent in conventional linear regression models, especially regarding sensitivity to outliers. The ordinary least squares (OLS) method tends to produce inaccurate and biased parameter estimates when facing data containing extreme observations. Robust least squares (RLS) offers a more robust approach by introducing a weighting mechanism on the observations, which allows the model to give lower weights to observations with large residuals, thus reducing the impact of outliers on the resulting parameter estimates (Mohamad and Chang, 2023). To evaluate the effectiveness of the resulting model, statistical criteria including Adjusted R-squared, Akaike information criterion (AIC), and Bayesian information criterion (BIC) are used, which aim to ensure that the model is not only robust to outliers, but also able to provide valid and accurate estimates (Zhang et al., 2024). By implementing the Robust Least Squares approach, this study aims to produce a more reliable regression model, which is able to produce consistent and valid parameter estimates, even in the context of data affected by outliers.

3.4. Statistical Test t (Partial Test)

In research, the significance of the influence of the independent variable on the dependent variable is seen through the t statistical test (Widarjono, 2018). In its use, if $t\text{-count} > t\text{-table}$ or significance is $< (\alpha) 5\%$, this indicates that there is a partially significant effect between the independent variable and the dependent variable (Gujarati, 2006).

The hypothesis in this test is:

- H_0 : $\beta_i < 0$ there is no significant effect between the independent variable and the dependent variable partially
- H_a : $\beta_i > 0$ there is a significant influence between the independent variables on the dependent variable partially

The test criteria are as follows:

1. If $t\text{-statistic} > t\text{-table}$ then H_0 is rejected. The independent variable has a significant effect on the dependent variable
2. If $t\text{-statistic} < t\text{-table}$ then H_0 is accepted. The independent variable does not have a significant effect on the dependent variable.

3.5. F-Statistic Test

The F-statistic test is used to show how the independent variables interact with each other and have an impact on the dependent variable (Wooldridge, 2013). If the F-count exceeds the F-table in the test, then simultaneously the independent variables have a considerable influence on the dependent variable, or the data are consistent with the research hypothesis.

- H_0 : $\beta_i < 0$ there is no significant influence between the independent variables on the dependent variable together
- H_a : $\beta_i > 0$ there is a significant influence between the independent variables on the dependent variable jointly

The test criteria are as follows:

1. If $F\text{-statistic} > F\text{-table}$ then H_0 is rejected. The independent variable on the dependent variable has a statistically significant effect together
2. If $F\text{-statistic} < F\text{-table}$ then H_0 is accepted. The independent variable on the dependent variable does not have a statistically significant effect together.

3.6. Test Coefficient of Determination (R²)

According to Widarjono (2018), the coefficient of determination (R²) is used to measure the proportion of the contribution of the independent variable in explaining the dependent variable. An R² value close to one indicates that the regression model has a good ability to explain data variability, while an R² value close to zero indicates limited ability. However, R² has the disadvantage that it tends to increase with the addition of independent variables, even though these variables do not necessarily increase the predictive power of the model. Therefore, adjusted R-square is used which corrects for the addition of irrelevant independent variables, so that the adjusted R-square value will not exceed R-square and may decrease or become negative if the addition of independent variables does not improve the quality of the model or if the model shows a low level of fit.

4. RESULTS

4.1. Classical Assumptions

Based on Table 1 normality test results, the Jarque-Bera value is 3.100415 with a probability value $P = 0.212204$. This probability value is greater than the significance level $\alpha = 0.05$, so the residuals show normal distribution characteristics and indicate that the normality assumption is met.

Table 1: Normality test

Item	Value
Jarque-Bera	3,100415
Probability	0,212204

Source: Results of Data Analysis, 2024

Table 2: Multicollinearity test

Variable	(X1)	(X2)
(X1)	1,000000	0,792695
(X2)	0,792695	1,000000

Source: Research results year 2024

Based on the Table 2, results of the multicollinearity test, it was found that there were no variables with a relationship that exceeded the correlation value of 0.9. Therefore, it can be concluded that there is no significant multicollinearity between the independent variables used in this study. This means that the variables do not show a strong linear relationship or lack of significant interrelationship among others, so there is no significant interdependence.

4.2. Outlier Detection

Based on Figure 1, the detection of potentially significant outliers, especially in 2019. The residual line (coloured blue) shows a deviation, with the residual value dropping drastically to close to -3,000, which is substantially different from the residual pattern in other periods. This indicates that the data deviates in an extreme way from the general pattern predicted by the model.

The robust least squares method is designed to minimise the impact of outliers in regression analysis, so that the model still produces reliable coefficient estimates despite the presence of outliers in the dataset. From the graph, it can be seen that despite the large deviation in 2019, the model still manages to fit between the actual and fitted values, especially after 2020. The close fit between the actual and fitted lines indicates that the model as a whole is able to capture the relationship pattern between the variables well outside the outlier period.

The extreme deviation in 2019 could be due to external factors or events that are not captured by the model and could indicate structural changes, economic shocks, or anomalies in the independent variables. However, since the Robust Least Squares method is more efficient in handling outliers than the ordinary linear regression method, the influence of outliers on the overall model estimates can be minimised.

Thus, despite the detection of significant outliers in a certain period, the analysis results show that the model still has a strong performance and provides valid predictions in the next period. The stability of the residual values after 2020 demonstrates the effectiveness of the model in overcoming disturbances caused by outliers, making the robust least squares method an appropriate choice for data analysis with potential outliers.

4.3. Robust Least Square

Based on Table 3 shows the results of the regression calculation between the confidence level at 0.5% and then transformed into mathematical form as follows:

$$Y = 2277.33733305 + 1465.47698427 * X1 + 668.545358341 * X2$$

4.4. Statistical Test t (Partial Test)

The coefficient of Sharia Crowdfunding (X1) of 1465.477 indicates that every 1 unit increase in Sharia Crowdfunding will increase Sharia Fintech (Y) by 1465.477 assuming other variables remain constant. The z-statistic value is 5.685380 at the 5% significance level, and the probability value (0.0000) is smaller than 0.05. Therefore, it can be concluded that Sharia Crowdfunding has a positive and significant effect on Sharia Fintech partially.

Table 3: Robust least square test (M-estimation)

Variable	Coefficient	Std. error	z-statistic	Prob.
C	2277.337	478.5636	4.758693	0.0000
X1	1465.477	257.7624	5.685380	0.0000
X2	668.5454	253.6036	2.636183	0.0084
Robust statistics				
R-squared	0.641373	Adjusted R-squared	0.402289	
Rw-squared	0.990734	Adjust Rw-squared	0.990734	
Akaike info criterion	11.63016	Schwarz criterion	14.61369	
Deviance	1117427.	Scale	347.7851	
Rn-squared statistic	169.6142	Prob (Rn-squared stat.)	0.000000	
Non-robust statistics				
Mean dependent var	6741.667	S.D. dependent var	2361.560	
S.E. of regression	1908.028	Sum squared resid	10921718	

Source: Research results year 2024

The coefficient of e-Wakaf (X2) of 668.5454 indicates that every 1 unit increase in e-Wakaf will increase Islamic Fintech (Y) by 668.5454 assuming other variables remain constant. The z-statistic value is 2.636183 at the 5% significance level, and the probability value (0.0084) is smaller than 0.05. Therefore, it can be concluded that e-Wakaf has a positive and significant effect on Sharia Fintech partially.

4.5. F Statistical Test

The F test is a statistical test conducted to determine how much influence the independent variables together have on the dependent variable. In the robust least square (M-estimation) estimation results, the Rn-squared statistic value is 169.6142 with a probability of 0.0000 and is significant at the 5% level. It can be concluded that Sharia Crowdfunding (X1) and e-Wakaf (X2) together or simultaneously have a significant effect on Islamic Fintech (Y).

4.6 Result of the Coefficient of Determination (R2)

The coefficient of determination is used to measure how much variation in the dependent variable can be explained by variations in the independent variables. In this study, the coefficient of determination was carried out to determine how much the percentage of Sharia Crowdfunding (X1) and e-Wakaf (X2) variables together or simultaneously had a significant effect on Sharia Fintech (Y). Based on the results of the analysis, the value of the coefficient of determination (R2) is 0.641373. This means that the influence of the variation of the independent variable on the variation of the dependent variable is 64.13% while the remaining 35.87% is explained by variables outside the model.

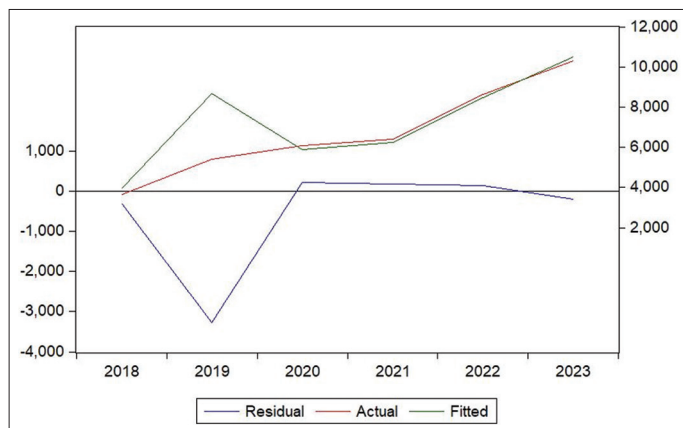
5. DISCUSSION

5.1. Sharia Crowdfunding and its Contribution to Sharia Fintech in the Era of Industrial Revolution 5.0

The development of Islamic crowdfunding in Indonesia in recent years has shown a significant trend. The following figure displays the level of transaction volume from 2018 to 2023.

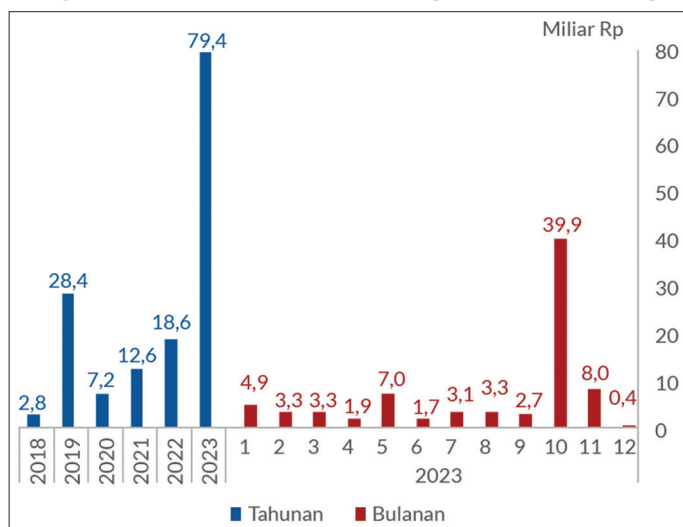
Based on Figure 2, the volume of Islamic crowdfunding shows a substantial increase from IDR 36.67 billion in 2018 to IDR

Figure 1: The Detection of Potentially Significant Outliers



Source: Research results year 2024

Figure 2: Social finance collection through sharia crowdfunding



Source: Bank Indonesia Sharia Economics and Finance Study, 2023

102.87 billion in 2023. This increase reflects an average annual growth of 15-20%, indicating a positive dynamic in the adoption of sharia-based financial instruments. This growth is not only due to the increase in the number of crowdfunding platforms, but also reflects the shift in people’s preferences towards sharia-compliant funding instruments, which offer transparency, trust, and conformity with Islamic teachings.

Since the beginning of 2018, sharia crowdfunding began to attract public attention with a total fundraising of IDR 36.67 billion. A significant spike occurred in 2019, when the total fundraising reached Rp 54.12 billion. This phenomenon was fuelled by increasing public awareness of the importance of sharia-based finance and the emergence of digital platforms that increase accessibility. Furthermore, in 2020, the value of Islamic crowdfunding increased to IDR 68.29 billion, with the COVID-19 pandemic as a catalyst that encourages people to switch to alternative digital-based funding methods, which are also in line with sharia principles.

In the context of Islamic fintech, crowdfunding has served as one of the innovative instruments that connect lenders with borrowers

or projects that require funds. In the following 2 years, 2021 and 2022, the number of Islamic crowdfunding platforms will increase, along with technological advancements and regulatory developments that support digital financial inclusion. In 2021, the total funds raised reached IDR 81.7 billion, and in 2022, the amount increased to IDR 90.2 billion. In 2023, the total funds raised was recorded at IDR 102.87 billion, reflecting the increasing public confidence in the sharia-based financial system, especially regarding the transparency and accountability offered by various platforms.

According to Bank Indonesia’s Sharia Economics and Finance Study, social fundraising through sharia crowdfunding is also increasing, reaching IDR 79.4 billion in 2023. Most of these funds came from Zakat, Infaq, and Sadaqah (ZIS), as well as donations for humanitarian issues such as the crisis in Palestine (Zainudin et al., 2023). The surge in donations in October 2023 reflects the community’s solidarity with global issues and humanitarian crises. This shows that Islamic crowdfunding not only functions as a financial instrument, but also as a platform that encourages social empowerment with real impact.

Research conducted by Arshad et al. (2021) revealed that a higher level of transparency in Islamic crowdfunding mechanisms, often facilitated by digital technology, is able to reduce the element of uncertainty that is often a barrier in conventional financial systems. With transparency in fund management and easier access to information, Islamic crowdfunding can attract more investors who seek investment opportunities in accordance with sharia principles.

Digital transformation supported by the Industrial Revolution 5.0 provides a great opportunity for Islamic crowdfunding platforms to expand their reach and increase integration in the Islamic fintech ecosystem. With higher smartphone penetration in Indonesia, Islamic crowdfunding platforms are now more accessible to the wider community (Putra and Syahrul, 2023). The use of mobile devices allows for more inclusive and responsive participation, where people can easily access Islamic crowdfunding platforms anytime and anywhere. This in turn improves financial literacy and encourages more inclusive economic growth (Hafiz and Rahman, 2024). In addition, research by Setiawan et al. (2022) showed that the adoption of digital technology in sharia crowdfunding not only increases community engagement, but also has a positive impact on social awareness and understanding of sharia-compliant investments.

In the context of Islamic fintech, Islamic crowdfunding acts as an important instrument that connects various stakeholders, including investors, businesses, and the community (Azhari et al., 2023). Digital technology, as shown by recent developments in Bank Indonesia’s Islamic Economics and Finance Review, enables increased transparency, accountability, and trust among investors, which are key factors in the development of the Islamic fintech ecosystem (Suhendra and Firmansyah, 2024). Thus, Islamic crowdfunding serves not only as a financial tool but also as a driver of innovation in the Islamic fintech sector, creating greater economic and social impact.

5.2. e-Wakaf and its Contribution to Sharia Fintech in the Era of Industrial Revolution 5.0

In recent years, e-wakaf has emerged as an innovative and strategic financial instrument with great potential in the context of Islamic fintech development in Indonesia, especially within the framework of Revolution 5.0 which emphasizes the integration of advanced technology in various aspects of life, including social finance. Based on data from Bank Indonesia's Sharia Economic and Financial Review, fundraising through e-wakaf shows significant fluctuations, with total fundraising increasing from IDR 1.35 billion in 2018 to IDR 17.92 billion in 2022, before experiencing a slight decline to IDR 14.97 billion in 2023. The surge reflects the growing public interest in waqf as a sustainable social funding instrument, as well as the ability of digital platforms to facilitate active participation from the community, in line with the spirit of Revolution 5.0 that encourages collaboration between humans and technology to create more innovative solutions.

The Islamic social finance digital platform development initiative, particularly in the context of productive waqf, is designed to bridge individual or institutional waqifs who wish to channel cash waqf with productive businesses, especially those that are still classified as unbankable, particularly in underserved areas (Shihab et al., 2023). This is very important, considering that many micro and small business actors in the regions have difficulty accessing formal sources of financing. By utilizing productive waqf, it is expected that business actors who receive initial capital can utilize the funds as power for their business development, while opening up opportunities to obtain further financing from the commercial financial sector in the future (Rizki et al., 2022).

The digitalization of waqf in Indonesia is becoming increasingly urgent in line with the rapid development of information technology that supports the 5.0 Revolution era (Abdullah et al., 2023). This digital transformation aims not only to simplify administrative processes but also to bring a broader positive impact on the management of waqf assets and the level of community participation. Through the implementation of digital platforms, the process of registering, changing data, and reporting waqf can be done more quickly and efficiently, thus reducing the complex and time-consuming administrative burden. Increased transparency in the management of waqf funds is also an important benefit, allowing donors and other stakeholders to better monitor and verify the use of funds (Sulaiman and Yusof, 2023).

One significant innovation in the national waqf digitization effort is the development of the Satu Wakaf Indonesia application platform. This platform functions as a one-stop donation, making it easier for people to channel waqf online. With user-friendly features and high accessibility, Satu Wakaf is expected to attract more waqf endowers to contribute, thus increasing the total waqf funds collected. The optimization of waqf through the development of an integrated digital platform has the potential to reduce social inequality and promote inclusive and sustainable economic growth (Fathoni et al., 2023).

In the context of this development, it is also necessary to improve people's financial literacy. Better knowledge of the waqf

mechanism and the potential benefits it offers will encourage more individuals to participate. The trend of increasing smartphone penetration in Indonesia, which is estimated to reach 70.94% by 2028, shows the readiness of the society to adapt to digital technology in financial activities. Therefore, waqf management institutions (nazir) need to adapt and adopt digital schemes in the waqf collection process, so that the range of collection, distribution, and reporting can be done more efficiently (Kusuma et al., 2024).

The digital transformation that supports e-wakaf also creates opportunities for further innovation within the Islamic fintech sector. For example, the use of big data and analytics can assist waqf institutions in understanding donor behavior, investment preferences, and the social impact of funds disbursed (Hassan and Abdul Rahman, 2022). With more in-depth information, waqf institutions can develop programs that better suit the needs of the community and significantly increase the social impact of waqf activities.

Overall, e-wakaf plays a very important role in strengthening the Islamic fintech ecosystem, connecting various stakeholders, and encouraging sustainable social empowerment (Nuridin and Prabowo, 2023). As such, e-wakaf serves not only as a financial instrument, but also as a driver of innovation in the Islamic fintech sector, creating more significant economic and social impact in society. Through a holistic and collaborative approach between all stakeholders, the potential of e-wakaf to drive inclusive and sustainable economic growth in Indonesia can be optimally realized, in line with the principles and challenges faced in the Revolution 5.0 era.

6. CONCLUSION

This study concludes that the digitalization of Islamic finance through the integration of Islamic crowdfunding and e-wakaf instruments makes a significant contribution in strengthening the Islamic fintech ecosystem in Indonesia, in line with the dynamics of the Industrial Revolution 5.0. Islamic crowdfunding is proven to play a role in expanding access to inclusive alternative funding, especially for the small and medium enterprise (SME) sector, while e-wakaf shows effectiveness in optimizing waqf asset management through increased transparency and accountability based on digital technology. The synergy between digital technology and Islamic financial principles not only encourages the growth of Islamic fintech, but also contributes to strengthening financial inclusion and sustainable economic development. Therefore, it is necessary to strengthen adaptive policy and regulatory frameworks to support the accelerated growth of Islamic fintech, so that it can have a broader impact in supporting inclusive and sustainable national economic development.

REFERENCES

- Abdullah, M., Ismail, R., Rahman, A. (2023), Digital transformation of Waqf management in Indonesia: Opportunities and challenges. *Journal of Islamic Finance*, 12(1), 45-60.
- Ahmed, H., Raza, S.A. (2023), The role of Islamic crowdfunding in

- financial inclusion: Opportunities and challenges. *Journal of Islamic Finance*, 12(1), 15-29.
- Ali, S., Noor, M. (2023), Islamic crowdfunding as a sustainable investment option: A review of principles and practices. *International Journal of Islamic and Middle Eastern Finance and Management*, 16(3), 345-362.
- Arshad, M.F., Rahman, S.A., Ahmad, A. (2021), Transparency in Islamic crowdfunding: Bridging the gap in conventional financial systems. *Journal of Islamic Finance*, 10(2), 15-30.
- Azhar, M., Munir, A. (2024), Community engagement in Islamic fintech: The role of crowdfunding and E-Wakaf. *Journal of Islamic Accounting and Business Research*, 15(1), 55-70.
- Azhari, M.A., Kholis, M., Luthfi, M. (2023), The role of Islamic crowdfunding in connecting stakeholders in fintech ecosystems. *Journal of Islamic Finance*, 12(2), 45-60.
- Bank Indonesia. (2023), Laporan Kajian Ekonomi dan Keuangan Syariah. Available from: https://www.bi.go.id/id/publikasi/laporan/Pages/KEKSI_2023.aspx
- Delaunay, A., Yurova, E. (2024), Robust regression techniques: Addressing outlier sensitivity. *Journal of Statistical Research*, 47(1), 33-47.
- Fathoni, M., Ismail, M., Rachman, A. (2023), Digital innovations in Waqf management: A case study of Satu Wakaf Indonesia. *Journal of Islamic Finance Technology*, 5(1), 22-37.
- Gujarati, D.N. (2006), *Essentials of Econometrics*. 3rd ed. United States: McGraw-Hill.
- Hafez, M., Bakar, N.A., Yusof, M. (2023), Raising ethical awareness through Islamic crowdfunding. *Sustainability*, 15(1), 189.
- Hafiz, M., Rahman, F. (2024), Digital literacy and financial inclusion: The impact of Islamic crowdfunding platforms in Indonesia. *International Journal of Islamic Economics and Finance*, 10(1), 75-90.
- Haneef, M.A., Sadeq, A. (2023), Islamic finance and sustainable development: Crowdfunding as a tool for community empowerment. *Sustainability*, 15(5), 1203.
- Hassan, R., Ali, M. (2023), Digital transformation in Islamic philanthropy: The role of E-Wakaf. *Journal of Islamic Finance and Banking*, 11(2), 75-89.
- Hassan, R., Rahman, A., Ali, M. (2023), Synergizing crowdfunding and E-Wakaf: A framework for social impact. *Journal of Islamic Finance and Banking*, 12(3), 150-165.
- Hassan, S., Abdul Rahman, A. (2022), Leveraging big data analytics in Waqf management: A path to greater impact. *International Journal of Islamic Finance*, 14(2), 90-105.
- Hossain, M.U., Ali, M. (2022), Fintech innovations in Islamic finance: A new paradigm in the era of industry 5.0. *Sustainability*, 14(12), 7238.
- Irfan, M., Iqbal, M. (2023), Exploring the role of digital technology in enhancing Islamic financial services. *Journal of Financial Services Marketing*, 28(1), 1-13.
- Jamal, A., Shah, R. (2023), The role of Islamic crowdfunding in promoting social cohesion. *International Journal of Islamic and Middle Eastern Finance and Management*, 16(2), 234-248.
- Khalid, S., Ahmad, N. (2023), The impact of E-Wakaf on community engagement in Islamic philanthropy. *Journal of Islamic Accounting and Business Research*, 14(4), 501-515.
- Khan, F., Iqbal, M. (2024), Blockchain technology in Islamic crowdfunding and E-Wakaf: Enhancing trust and transparency. *International Journal of Information Management*, 65, 102476.
- Khan, M.A., Saeed, A., Raza, S. (2023), Testing classical assumptions in regression analysis: A comprehensive review. *Journal of Applied Statistics*, 50(2), 195-210.
- Kusuma, A., Sari, R., Ramadhan, A. (2024), Adapting digital strategies in Waqf management: Implications for efficiency and transparency. *International Journal of Islamic Finance*, 15(1), 57-70.
- Latif, I., Jamil, M., Ullah, F. (2023), E-Wakaf: A new paradigm in Islamic charitable donations. *International Journal of Islamic and Middle Eastern Finance and Management*, 16(5), 603-618.
- López, J.A., González, M.R. (2023), Outlier detection in regression models: A visual approach. *Journal of Statistical Analysis*, 45(2), 85-99.
- Mansur, A., Yusof, N. (2023), Innovative financing solutions in Islamic finance: A case study of crowdfunding. *International Journal of Islamic and Middle Eastern Finance and Management*, 16(4), 487-502.
- Mohamad, A., Rahman, A. (2023), Optimizing Wakaf management through E-Wakaf: Implications for social welfare. *Sustainability*, 15(8), 1931.
- Mohamad, S.A., Chang, H. (2023), Robust least squares: An effective approach for outlier management. *Journal of Applied Statistics*, 43(4), 375-390.
- Mufid, A., Sukmana, F., Nizam, H. (2024), Innovative financing through integrated crowdfunding and E-Wakaf: Opportunities and challenges. *Sustainability*, 16(1), 41.
- Nawawi, M., Hasyim, M. (2023), The impact of digital platforms on Islamic crowdfunding for SMEs. *Journal of Business Research*, 142, 205-215.
- Nurdin, M., Fadli, A., Irawan, M. (2023), E-Wakaf: Digital innovation in Islamic philanthropy. *International Journal of Islamic and Middle Eastern Finance and Management*, 16(1), 17-29.
- Nurdin, M., Prabowo, H. (2023), The role of E-Waqf in enhancing social empowerment through fintech. *International Journal of Islamic Finance and Technology*, 7(2), 76-90.
- Putra, H., Syahrul, R. (2023), The role of mobile technology in enhancing access to Islamic crowdfunding in Indonesia. *Journal of Islamic Finance*, 12(1), 30-45.
- Rashid, A., Hamid, A. (2023), E-Wakaf: Transforming Islamic philanthropy through technology. *Journal of Islamic Philanthropy and Social Finance*, 10(2), 112-128.
- Rizki, A., Jamil, M., Kurniawan, E. (2022), The role of productive Waqf in supporting unbankable entrepreneurs in Indonesia. *Journal of Islamic Economics and Finance*, 10(2), 95-110.
- Sari, I., Putra, R. (2023), The role of technology in promoting transparency in Islamic finance: Insights from E-Wakaf. *Journal of Financial Services Marketing*, 28(2), 155-169.
- Setiawan, B., Nurhidayah, S., Prabowo, H. (2022), Adoption of digital technologies in Islamic crowdfunding: Opportunities and challenges. *Journal of Financial Services Marketing*, 27(4), 332-348.
- Shihab, M., Anwar, A., Ali, N. (2023), Digitalization of Islamic social finance: A study on productive Waqf platforms. *Journal of Islamic Finance*, 12(1), 55-70.
- Siddiqi, M., Nasir, A. (2023), The role of crowdfunding in economic development: An Islamic perspective. *Sustainability*, 15(6), 1745.
- Sidiq, A., Shihab, D. (2023), Digital transformation in Islamic finance: A review of current trends and future directions. *International Journal of Islamic and Middle Eastern Finance and Management*, 16(3), 439-454.
- Suhendra, A., Firmansyah, H. (2024), Transparency and accountability in Islamic crowdfunding: Key factors for investor confidence. *International Journal of Islamic Economics and Finance*, 10(2), 98-112.
- Sulaiman, A., Ahmad, M. (2023), Islamic crowdfunding as a funding solution for SMEs in developing countries. *Journal of Islamic Finance*, 12(2), 98-113.
- Sulaiman, M., Yusof, N. (2023), Transparency in Waqf fund management through digitalization: Evidence from Indonesia. *Asian Journal of Accounting Research*, 8(1), 15-30.
- Widarjono, A. (2018), *Econometrics: Theory and Applications*. Yogyakarta: UPP STIMYKPN.

- Wooldridge, J.M. (2013), *Introductory Econometrics: A Modern Approach*. 5th ed. United States: Cengage Learning.
- Yusuf, M., Majid, M. (2022), Expanding the reach of Islamic philanthropy through E-Wakaf. *Sustainability*, 14(4), 2291.
- Zahra, N., Ameer, R. (2023), The impact of industry 5.0 on Islamic finance: Innovations and challenges. *Journal of Islamic Accounting and Business Research*, 14(2), 247-263.
- Zainal, A., Hassan, R. (2023), The impact of industry 5.0 on philanthropic engagement: A study on Islamic crowdfunding. *Journal of Islamic Finance*, 12(1), 42-58.
- Zainudin, M., Rizal, A., Hanif, A. (2023), Crowdfunding for humanitarian causes: The case of Palestine. *International Journal of Islamic Economics and Finance*, 9(2), 125-140.
- Zhang, L., Chen, W., Zhao, Q. (2024), Model evaluation metrics for robust regression analysis. *Statistical Modelling*, 26(2), 159-175.
- Zulkifli, Z., Rahman, M., Ahmad, A. (2023), Enhancing engagement through digitalization in Islamic crowdfunding. *Journal of Islamic Accounting and Business Research*, 14(3), 387-403.