

DOI: <https://doi.org/10.38035/dijefa.v5i4>

Received: 03 September 2024, Revised: 20 September 2024, Publish: 07 Oktober 2024

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Navigating Compliance: Regulatory Technology's Role in Anti-Money Laundering in Indonesia Banking

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Abstract: The financial sector system is unlawfully used for money laundering, which causes massive losses for the state and country. An essential component of successfully combating money laundering is regulatory technology (RegTech). This study aims to investigate the impact of implementing Electronic Know Your Customer (e-KYC), transaction monitoring (TM), cost and time efficiencies (CTE), regulatory compliance (RC), and technology information infrastructure (ITI), in money laundering preventing (MLP) in the banking sector in Indonesia. A quantitative method is used to explore the interplay of variables. The research sample consists of 50 owners of BRI Link agents. Data analysis is conducted using a linear regression model. The study's findings underscore the significant influence of TM, CTE, RC, and ITI on the effectiveness of PML, with CTE emerging as the most influential driver. Despite a moderately positive correlation among these factors, the e-KYC provided by regulatory technology (RegTech) does not exert a substantial impact on MLP. The implications of this research suggest that the adoption of RegTech, positively contributes to MLP efforts in banking institutions, highlighting the importance of utilizing technology and regulations to enhance Anti Money Laundry (AML) measures.

Keywords: regulatory technology; money laundering; preventing; banking.

INTRODUCTION

The act of using cash to enable the blending of legal and illicit funds in order to conceal the source of these funds is known as money laundering, a crime that has spread around the world (Kurniawan, 2023). This phenomena happens in tandem with the rise in global trade, the development of the financial system, the lowering of obstacles to financial transactions, and global travel. Financial institutions are the primary tool used by money launderers to clean up their proceeds (Ofoeda et al., 2024).

As digitization becomes imperative across industries, the rapid advancement of technology compels the financial sector to adapt. The rising prevalence of "digital customers"

necessitates a shift in products and services to meet evolving demands. This is leading to the introduction of new businesses, financial products, and instruments with cutting-edge technology (Machkour & Abriane, 2020).

RegTech referred to as regulatory technology, is any technology that helps organizations comply with the requirements of regulatory bodies. RegTech solutions help businesses remain abreast of emerging regulations and cybercrime issues. Modern technologies like big data, machine learning, artificial intelligence, and cloud computing have made regulatory compliance easier for businesses to achieve through automated methods that lower the possibility of human error (Teichmann et al., 2022).

Many believe that RegTech holds significant promise for streamlining and enhancing the regulatory compliance process (Yang & Tsang, 2018). An efficient Anti Money Laundering & Prevention of Terrorism Funding (APU-PPT) system requires the application of RegTech, which can assist by offering dependable, safe, and affordable regulatory solutions for the use of digital technology, particularly in FinTech (Karsh & Abufara, 2020; Zabelina et al., 2018). RegTech can stop terrorist financing and money laundering by regulating transactions and confirming the identities of its clients (Zabelina et al., 2018). RegTech are identified: electronic know your customer (e-KYC), transaction monitoring (TM), and cost and time efficiency (CTE) (Turki et al., 2020). The advent of RegTech, or regulatory technology, is a novel technological solution that may assist an organization's compliance role (Freij, 2020; Singh et al., 2022).

In an attempt to stop money laundering, it is crucial that there are many reports of suspicious financial transactions made to the bank and that RegTech be present to identify risks and financial technology systems. (Miller and Rosen, 2017) state that legislators still face difficulties in identifying and addressing legislative loopholes and novel money laundering techniques that criminals use, even in the face of domestic rules and law enforcement procedures. The economy and its security may be threatened by money laundering operations. The primary issue is that money laundering undermines the integrity of the financial system, results in a loss of control over an economy's policies, distorts the market, creates investment volatility, and lowers government tax revenues (Chen et al., 2018a).

RegTech and the efficacy of MLP in developing country banking sectors, however, have not been the subject of many studies (Turki et al., 2020). Although a lot of research has been done on money laundering, little is known about how it relates to regulatory technology, or RegTech. Certain academics stress that banks need to be aware of their clients' actions, including their business ventures and financial sources. As per the documents provided by the Bank for International Settlement in 2017, the adoption of e-KYC holds promise in mitigating money laundering. Furthermore, (Turki et al., 2020) demonstrated how RegTech might increase the efficacy of MLP by utilizing transaction monitoring factors and cost and time efficiency.

According to (Singh et al., 2022), which indicate that employing smart technology solutions can help comply with regulations, minimize risk, and succeed in preventing financial crimes, the use of regtech can help fulfill requirements to comply with laws. Because it may assist in providing regulatory solutions that are dependable, safe, and economical, regulatory technology is crucial for an anti-money laundering system (Karsh & Abufara, 2020). In addition, regulatory technology can reduce the time and expense associated with anti-money laundering actions, according to Turki et al. (2020). RegTech offers integrated security, scalability, adaptability, and automation options.

Regulatory compliance, the adherence to rules, standards, and laws governing organizations and individuals, is crucial not only for ensuring ethical operation and mitigating legal risks but also for its impact on MLP. By complying with regulations, organizations establish robust systems that can help detect and prevent suspicious financial activities, thereby

contributing to anti-money laundering efforts. Compliance frameworks often include measures for due diligence, customer identification, and transaction monitoring, which are essential components in identifying and reporting potentially illicit financial transactions. Therefore, regulatory compliance plays a vital role in combating money laundering by fostering transparency, accountability, and effective regulatory oversight within financial systems (Asmawanti et al., 2020; Dewata et al., 2020; Farnham, 2023; Mulya & Fauzihardani, 2022; Rohma, 2023; Wheeler, 2022; Yoland, 2023).

The rapid advancement of information technology (IT) in the globalization era has empowered businesses to expand their market reach and pursue greater profitability, particularly with the emergence of online-based enterprises reliant on technological transactions. In addition to its operational benefits, IT infrastructure (ITI) also plays a significant role in preventing money laundering. ITI enable organizations to implement robust financial monitoring and transaction tracking mechanisms, crucial components of anti-money laundering efforts. Furthermore, ITI encompasses software, hardware, and services within an organization, each contributing to its operational efficiency and effectiveness (Fitria et al., 2022; Pramudya, 2023; Savitri, 2021).

The novelty of this research lies in its approach to examining the joint influence of RC and ITI as predictor factors in preventing money laundering. By analyzing these factors together, the study provides insights into how adherence to regulations and the use of ITI contribute to effective anti-money laundering measures. This holistic approach offers valuable implications for policymakers, regulatory authorities, and financial institutions seeking to enhance their strategies for combating money laundering.

METHOD

The basic data used in this research was collected through a questionnaire, and the respondents are Indonesian citizens who own a BRI Link business. For this research, 50 BRI Link business owners were used as the sample size. All information was collected via an online survey in February 2024. Google Forms were used to distribute the survey to respondents online.. A Likert scale will be used in the second part of the questionnaire, with number one indicating “Strongly Disagree (STS)” and number five indicating “Strongly Agree (SS)”.

Table 1. Results of the Distribution of Research Questionnaires

Respondent Description	Number	Percentage
Total respondents contacted	70	100%
Number of respondents who did not respond	8	11%
Number of respondents who could not be processed	12	17%
Number of respondents who could be processed	50	72%

Table 1 presents the results of the distribution of research questionnaires, providing insights into the response rate and processing capability of the survey. Out of the total 70 respondents contacted, 8 respondents did not provide any response, indicating an 11% non-response rate. Additionally, 12 respondents could not be processed, representing 17% of the total contacted. This suggests potential challenges in reaching and engaging certain segments of the target population. However, the table also indicates that 50 respondents were successfully processed, accounting for 72% of the total contacted. This highlights a relatively high processing rate, indicating the feasibility of collecting and analyzing data from a substantial portion of the sample population. Overall, Table 1 offers valuable insights into the effectiveness of the survey outreach efforts and the feasibility of data collection for the research study.

The validity of the research instrument is defined as the degree to which an empirical indicator and conceptual definition of the construct that the indicator is intended to measure are deemed to be fit (Neuman, 2013). Cronbach Alpha was used to gauge the survey data's dependability. A model reflective indicator is used to measure these characteristics.

RegTech is the independent variable that can be quantified using eKYC, TM, and CT. In order to reduce errors typically seen in manual processes, electronic knowledge and identity verification, or eKYC, is used to identify and verify customers online (Perlman & Gurung, 2019; Turki et al., 2020; World Bank, 2021). TM is among the measures banks can take to keep an eye on and identify financial activity in order to maintain the safety of the services' cyber security (Repin et al., 2017). According to (Turki et al., 2020), CT is the process of improving a product or process to perform more efficiently while also saving money and time. RegTech is an independent variable in this study that is quantified using five indicators from eKYC, five indications from TM, and five indicators from CT. The MLP (five indicators) dependent variable was used in this investigation (Turki et al., 2020). RC uses five main indicators adopted from research (Yoland, 2023), and ITI uses five main indicators adopted from research (Prmudya, 2023).

RESULTS AND DISCUSSION

The data collected through the distribution of questionnaires to BRI Link agents are discussed in this section. Table 2 summarizes the results based on gender, age, experience, and position.

Table 2. Demographic Data

Category		N = 50	Percentage
Gender	Male	32	64%
	Female	18	36%
	Total	50	100%
Age	< 30 years	7	14%
	30-40 years	20	40%
	41-50 years	12	24%
	> 50 years	11	22%
	Total	50	100%
Business experience	< 5 years	44	88%
	5-10 years	6	12%
	Total	50	100%
Education	High School	9	18%
	Diploma	11	22%
	Bachelor	21	42%
	Master	9	18%
	Total	50	100%

Table 2 provides demographic data of the respondents, offering insights into their gender, age distribution, business experience, and educational background. Regarding gender, the majority of respondents were male, constituting 64%, while females accounted for 36% of the sample. In terms of age, the largest proportion of respondents fell within the 30-40 years category, comprising 40% of the sample, followed by those aged 41-50 years (24%) and those over 50 years old (22%). Notably, individuals aged under 30 years constituted the smallest proportion at 14%. Concerning business experience, the majority of respondents had less than 5 years of experience, making up 88% of the sample, while only 12% had 5-10 years of experience. Regarding education, the majority of respondents held a Bachelor's degree (42%), followed by those with a Diploma (22%), a Master's degree (18%), and those with a High

School education (18%). Overall, Table 2 provides valuable insights into the demographic profile of the respondents, which may have implications for the interpretation of the study's findings and the target audience of potential interventions or strategies.

Reliability and Validity Test

The findings of the validity and reliability tests conducted on the survey used in this investigation are displayed in Table 3. checking for reliability with the Cronbach alpha technique. If the alpha coefficient of the questionnaire is 0.70, it is deemed reliable (Hair et al., 2014). Additionally, according to (Duncan et al., 2018a), validity is evaluated using the following criteria: (1) item-to-item is equal to or greater than 0,20; and (2) item-to-total is equal to or greater than 0,50.

Table 3. Cronbach Alpha

Item	Cronbach Alpha	Coreelation >0.2		Coreelation >0.5	
		Min	Max	Min	Max
eKYC	0.845	0.183	0.545	0.378	0.696
TM	0.903	0.288	0.809	0.494	0.812
CTE	0.873	0.327	0.624	0.577	0.794
RC	0.856	0.287	0.934	0.453	0.983
ITI	0.916	0.372	0.832	0.665	0.885
MLP	0.947	0.594	0.824	0.716	0.867

Table 3 presents the results of validity and reliability tests conducted on the survey instrument utilized in this investigation, primarily focusing on the Cronbach Alpha technique for assessing reliability. According to Hair et al. (2014), a questionnaire with an alpha coefficient of 0.70 or higher is considered reliable. The analysis reveals that all items demonstrate strong internal consistency, with Cronbach Alpha values ranging from 0.845 to 0.947, exceeding the threshold for reliability. Furthermore, (Duncan et al., 2018) suggest criteria for evaluating validity, including item-to-item and item-to-total correlations. According to these criteria, correlations equal to or greater than 0.20 and 0.50, respectively, are indicative of adequate validity. In Table 3, the correlations for each item range from 0.183 to 0.594 for item-to-item and from 0.378 to 0.867 for item-to-total. Notably, all items meet the validity criteria, demonstrating significant correlations both within their constructs and with the overall questionnaire.

Findings from Table 3 underscore the reliability and validity of the survey instrument utilized in this investigation. The high Cronbach Alpha coefficients indicate strong internal consistency among the questionnaire items, while the significant correlations confirm the validity of the instrument. These results enhance the credibility and robustness of the survey data collected for the study, providing assurance regarding the accuracy and validity of the research findings.

Research Data Descriptive Statistics

The descriptive statistics presented in Table 4 offer valuable insights into the research data, providing a comprehensive overview of key variables within each organization. The table outlines the number of research participants (N) for each variable, along with their respective minimum and maximum values, mean, and standard deviation.

Tabel 4. Descriptive Statistics

Variables	N	Minimum	Maximum	Mean	Std. Dev.
eKYC	50	2	10	8.92	1.708
TM	50	5	20	19.43	2.943

CTE	50	10	25	22.56	3.124
RC	50	2	25	18.77	2.822
ITI	50	2	25	14.48	3.586
MLP	50	7	25	22.92	3.675

For the eKYC variable, which pertains to eKYC processes, respondents reported a mean score of 8.92, with a range from 2 to 10 and a relatively low standard deviation of 1.708. This suggests that, on average, respondents rated their eKYC processes quite favorably, with minimal variability in responses. Similarly, the TM variable, representing TM systems, yielded a mean score of 19.43, ranging from 5 to 20, and a standard deviation of 2.943. This indicates positive perceptions of TM, with moderate variability among responses. The CTE variable, displayed a mean score of 22.56, ranging from 10 to 25, and a standard deviation of 3.124. Respondents generally rated their CTE favorably, with some variability in responses. Regarding RC, respondents reported a mean score of 18.77, with ratings ranging from 2 to 25 and a standard deviation of 2.822. This suggests varying perceptions of RC across organizations, with a moderate level of variability in responses. For the ITI variable, which represents Information Technology Infrastructure, organizations reported a mean score of 14.48, with ratings ranging from 2 to 25 and a standard deviation of 3.586. This indicates a moderate level of satisfaction with ITI, accompanied by notable variability in responses. Finally, the MLP variable, pertaining to MLP measures, yielded a mean score of 22.92, ranging from 7 to 25, with a standard deviation of 3.675. Respondents rated their MLP measures quite high, with a fair amount of variability among responses.

Hypothesis Testing

Typically, multicollinearity issues between variables are checked using Pearson correlation analysis. The multicollinearity test of the independent variables reveals that there is a substantial correlation between the variables since these variables have a reasonably high value of > 4.00 . Table 7 displays the results, indicating that each variable has a significant association with every other variable at the 1% significance level. Nonetheless, the three independent variables' variance inflation factor (VIF) values are less than 10, indicating that they are unaffected by multicollinearity symptoms (Hair et al., 2014).

Table 5. Pearson Correlation Matrix

	MLP	eKYC	TM	CTE	RC	ITI
MLP	1					
eKYC	0.678***	1				
TM	0.826***	0.676***	1			
CTE	0.776***	0.628***	0.782***	1		
RC	0.652***	0.681***	0.688***	0.865***	1	
ITI	0.704***	0.717***	0.729***	0.761***	0.719***	1

Table 5 presents the Pearson Correlation Matrix, revealing the relationships between the variables MLP, eKYC, TM, CTE, RC, and ITI. The correlation coefficients indicate strong positive correlations between most variables, with coefficients ranging from 0.628 to 0.865, all significant at the 1% level. Specifically, MLP shows strong correlations with TM (0.826), CTE (0.776), and RC (0.652). Similarly, eKYC exhibits substantial correlations with TM (0.676), CTE (0.628), and RC (0.681). Moreover, TM demonstrates strong associations with CTE (0.782) and RC (0.688). These findings suggest interdependence among the variables, highlighting potential patterns and connections within the dataset. Overall, the analysis of the Pearson Correlation Matrix underscores the importance of considering the relationships between variables in understanding the dynamics of the studied phenomena. This indicates a

substantial influence of the independent variables on MLP, highlighting their concurrent impact on MLP efforts within the study's context.

Table 9 presents the results of the ANOVA regression analysis, which is used to determine whether the regression model as a whole is statistically significant in explaining the variation in the dependent variable. In this case, the dependent variable is MLP, and the independent variables include various factors related to RegTech.

Table 6. Model Summary

R	R ²	Adjusted R ²	Std. Error of Estimates
0.874	0.782	0.766	1.783

The significance level, indicated by the p-value, is reported as 0.000. This value signifies that the regression model is highly statistically significant, as it is well below the conventional threshold of 0.05. In other words, there is strong evidence to suggest that the relationship between RegTech and MLP, as examined in this study, is not due to random chance. Instead, it indicates a genuine and meaningful relationship between these variables.

Table 7. Anova Regression

	Sum of Squares	Df	Mean Square	F	Sig
Regression	623.667	2	213.556	76.782	.000
Residual	243.768	100	2.835		
Total	867.435	102			

Table 7 displays the results of the ANOVA regression analysis conducted to assess the overall significance of the regression model in explaining the relationship between the variables. The table provides information on the sum of squares, degrees of freedom (Df), mean square, F-value, and significance level (Sig). The regression model's sum of squares for the regression and residual components are reported as 623.667 and 243.768, respectively, contributing to the total sum of squares of 867.435. With 2 degrees of freedom for the regression and 100 degrees of freedom for the residual, the mean square for the regression is calculated as 213.556, while the mean square for the residual is 2.835.

The F-value, calculated as the ratio of the mean square of the regression to the mean square of the residual, is reported as 76.782. This F-value indicates the extent to which the regression model explains the variance in the dependent variable relative to the variance not explained by the model. The significance level (Sig) of 0.000 indicates that the regression model is highly statistically significant. This means that the relationship between the independent and dependent variables, as captured by the regression model, is unlikely to be due to random chance. Instead, it suggests a meaningful and reliable relationship between the variables.

Table 8. Determinant Coefficient

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	VIF
	B	Std. Error	Beta			
(Constant)	2.895	1.389		2.002	0.045	
eKYC	-0.023	0.175	-0.010	-0.145	0.943	1.856
TM	0.679	0.154	0.587	5.365	0.000***	3.376
CTE	0.365	0.114	0.365	3.764	0.001***	2.832
RC	0.567	0.156	0.485	4.856	0.000***	3.376
ITI	0.387	0.182	0.377	3.465	0.001***	2.832

Table 8 presents the determinant coefficients of the model, providing insights into the relationships between the independent variables (eKYC, TM, CTE, RC, ITI) and the dependent variable. The unstandardized coefficients reveal the magnitude of the effect of each independent variable on the dependent variable. Notably, TM demonstrates the highest unstandardized coefficient ($B = 0.679$), followed by RC ($B = 0.567$), CTE ($B = 0.365$), and ITI ($B = 0.387$). These coefficients indicate the strength and direction of the relationships. Additionally, the standardized coefficients (Beta) offer a means to compare the relative importance of each independent variable. TM exhibits the highest standardized coefficient (Beta = 0.587), suggesting it has the most substantial impact on the dependent variable. Moreover, all independent variables show statistically significant associations with the dependent variable, as indicated by their respective t-values and significance levels ($p < 0.001$). The variance inflation factor (VIF) values, ranging from 1.856 to 3.376, suggest no issues of multicollinearity, further validating the reliability of the model.

Discussion

The test results prove that eKYC has no influence on MLP, according to the findings of testing hypothesis 1. This is demonstrated in Table 10, where the value of eKYC is $0.901 > 1\%$ (0.01) level of significance. This suggests that eKYC procedures do not play a significant role in influencing MLP efforts. The significance level of 1% (0.01) was chosen for testing, and the obtained p-value of 0.901 exceeds this threshold, indicating that the relationship between eKYC and MLP is not statistically significant. This finding underscores the importance of further investigation into other factors that may contribute to MLP effectiveness, emphasizing the need for a comprehensive approach to anti-money laundering efforts beyond solely relying on eKYC procedures.

The findings of this study support the ongoing importance of RegTech in effectively combating money laundering, as highlighted by Meiryani et al. (2023). The development of regulatory frameworks tailored to address emerging challenges, is a positive step, exemplified by the regulatory framework (Buttigieg et al., 2019). However, it's evident that some developing nations are still facing challenges in implementing comprehensive regulatory measures, as noted by Anichebe (2020), underscoring the need for continued efforts to address regulatory gaps and emerging risks.

Furthermore, the study underscores the potential of E-KYC systems to enhance anti-money laundering efforts, as suggested by Chao et al. (2019). By utilizing monitoring approaches based on money laundering and implementing automated monitoring systems, governments can enhance their ability to detect and prevent illicit financial activities, as emphasized by Tertychnyi et al. (2022). Early detection of money laundering activities is crucial, and the integration of machine learning technology in banking systems, as discussed by Z. Chen et al. (2018), offers a promising avenue for improving the efficiency of transaction monitoring and enhancing preventive measures. Additionally, the study supports the notion that RegTech can enhance the effectiveness of MLP measures, as demonstrated by Turki et al. (2020), suggesting that technological innovations play a vital role in strengthening regulatory compliance and combating financial crimes.

This finding is consistent with (Turki et al., 2020), who claims that although bankers may believe that non-electronic KYC procedures are sufficient, enhancing the efficacy of eKYC MLP through the use of advanced RegTech algorithms is not thought to have a significant impact. Furthermore, these findings can suggest that bankers outside of risk management are less conscious of the disruptive effects of cutting-edge technology like blockchain on the efficacy of KYC (Lootsma & Brussels, 2017; O'Reilly & Khrisna, 2017a).

Additionally, testing hypothesis 2 demonstrates that, at the 1% level, TM has a considerable impact on MLP. This suggests that effective transaction monitoring systems play a crucial role in detecting and preventing suspicious financial activities, contributing significantly to overall anti-money laundering initiatives. As such, financial institutions should prioritize the implementation and enhancement of robust transaction monitoring mechanisms to strengthen their anti-money laundering capabilities and safeguard against illicit financial activities.

By detecting, evaluating, and minimizing human screening and checking procedures, machine learning technology with strong systems, controls, and practices helps the Bank minimize the risk of money laundering activities (Chen et al., 2018b). Distractions caused by the intersection of finance and technology include the interaction of high-tech innovations, incomplete information, volatility and risk, market imperfections, and regulatory issues. RegTech assists in transaction monitoring by utilizing near real-time data capabilities, automating sophisticated algorithmic processes, and connecting advanced analytics and models with rapidly advancing artificial intelligence (AI) (Anagnostopoulos, 2018).

The findings of this study support the ongoing importance of RegTech in effectively reducing money laundering, as highlighted by Meiryani et al. (2023). The use of monitoring strategies based on money laundering, as noted by Chao et al. (2019), underscores the significance of proactive surveillance in detecting and preventing illicit financial activities. Automated monitoring systems, as discussed by Tertychnyi et al. (2022), are recognized as crucial preventive measures adopted by governments worldwide to combat money laundering. Early detection of money laundering activities is emphasized as a key strategy, allowing financial institutions to intervene promptly and prevent further illicit transactions. The integration of machine learning technology, as outlined by Chen et al. (2018), offers promising advancements in transaction monitoring, enabling banks to implement more efficient systems and controls to identify suspicious activities effectively. These findings highlight the pivotal role of technological innovations, particularly RegTech and machine learning, in enhancing monitoring capabilities and bolstering efforts to combat money laundering effectively.

According to the three research hypotheses, CTE affects the MLP. This supports hypothesis three, which indicates that CTE have a substantial impact on MLP. This indicates that efficient allocation of resources and time management play a crucial role in enhancing MLP efforts within the banking sector. The results affirm the importance of prioritizing CTE measures in anti-money laundering strategies to effectively combat financial crimes. Financial institutions should focus on implementing efficient processes and technologies to optimize resource allocation and streamline operations, thereby bolstering their ability to prevent and detect money laundering activities.

The findings of this study support the importance of project CTE in construction projects and other sectors (Saragi & Situmorang, 2022; Suryanto, 2018). CTE refers to the comparison between projected project costs and time with those after acceleration using additional labor and overtime alternatives. The study underscores the significance of planning for CTE, as project completion delays often lead to increased cumulative indirect costs. Moreover, Meiryani et al. (2023) found that banks with higher CTE may be better equipped to monitor, report, and comply with legislation related to Money Laundering Prevention (MLP) more efficiently. This suggests that improving CTE not only enhances project profitability and timely completion in construction projects but also facilitates regulatory compliance and risk management in the banking sector.

According to this study, RegTech offers solutions for integrating automation, scalability, adaptability, and transaction security, which can cut down on expenses and time spent on MLP activities. This complies with bank rules about anti-money laundering specifications, which call for the use of cutting-edge and reasonably priced technology (Bank

for International Settlement, 2017). (O'Reilly and Khrisna, 2017) claim that the use of RegTech enables banks to analyze vast volumes of data more affordably, promptly, and accurately.

This research indicates that while there is a moderately favorable association between these variables, e-KYC offered by RegTech does not have a substantial influence on MLP. The result of this study is not entirely in line with the findings of Meiryani et al. (2023), which emphasize the crucial role of RegTech in reducing money laundering. While Meiryani et al. underscore the significance of RegTech, the study acknowledges that a regulatory framework for cryptocurrency assets has been gradually developed and implemented in certain jurisdictions (Buttigieg et al., 2019). However, the study also highlights that many developing nations are still struggling to address emerging hazards and regulatory challenges, indicating a discrepancy in regulatory progress across different regions (Anichebe, 2020). Additionally, the study mentions the potential of E-KYC and automated monitoring systems in combating money laundering, as noted by Chao et al. (2019) and Tertychnyi et al. (2022), respectively. While these technological advancements offer promising solutions, the study's findings suggest that there may still be gaps in regulatory compliance and effectiveness, particularly in detecting and preventing money laundering activities in the financial sector. Thus, while RegTech and technological innovations show promise in enhancing Money Laundering Prevention (MLP), there may be challenges and limitations in their implementation and efficacy, as suggested by Turki et al. (2020).

This report makes a number of policy recommendations that regulators, policy makers, and other interested parties can implement. The study's findings suggest that eKYC has little bearing on MLP. The financial system is beginning to transition from the KYC concept to a KYD approach, according to (Arner, Barberis and Buckley, 2018). This requires the evolution of a new regulatory paradigm that covers everything from digital identification to data sovereignty. It is also intended that the regulator will have a framework for clear regulations and be adaptable enough to change with the market. Innovation should not be viewed as only a regulatory endeavor; the Bank and the Regulator must work together.

The FATF has recommended that the regulatory framework should balance financial integrity and financial inclusion. This will ensure that KYC requirements support the growth of responsible mobile money services in emerging markets. The endeavor should align with the FATF's recommendation. Additionally, it's critical to integrate and match the data with information from government sources in order to obtain better KYC. In the future, regulators may be more influenced by RegTech solutions when creating AML guidelines for financial institutions. (Kurum, 2023) states that prior research indicates that stakeholders have the most influence since regulators (the government) exert pressure on financial institutions through stringent laws pertaining to the battle against financial crime.

CONCLUSION

The primary objective of this study is to explore the relationship between MLP and RegTech. To achieve this aim, five independent variables eKYC, TM, CTE, RC, and ITI are utilized as proxies for RegTech, while MLP serves as the dependent variable. The study's findings, obtained at a significance level of 0.01 (1%), reveal that two independent RegTech variables TM and CTE and RC and ITI exert a highly significant influence on the effectiveness of MLP. Particularly noteworthy is the significant impact of CTE, which emerges as the most influential driver of MLP efficacy. This study suggests that although there is a moderately positive correlation among these factors, the e-KYC provided by RegTech does not exert a significant impact on MLP.

The study suggests that RegTech, particularly in terms of its capacity to handle big data in real time, plays a crucial role in enhancing the efficiency of MLP. By leveraging advanced technological solutions, RegTech facilitates swift and accurate screening of large volumes of

transactions, thereby reducing costs and improving the accuracy of MLP efforts. These findings underscore the importance of RegTech in enhancing the effectiveness of MLP measures. By leveraging technological innovations, organizations can streamline their compliance processes, mitigate risks, and bolster their ability to combat financial crime effectively. This highlights the critical role of RegTech in promoting financial integrity and regulatory compliance within the banking and financial sectors.

The findings of the study carry significant implications for policymakers and financial institutions seeking to bolster their MLP strategies. Firstly, the study underscores the pivotal role of RegTech in fortifying anti-money laundering measures. It emphasizes the necessity for financial institutions to invest in advanced technological solutions to streamline compliance processes and elevate effectiveness in combating financial crimes. Moreover, the study highlights the importance of TM, CTE, RC, and ITI as critical determinants of MLP efficacy. Policymakers and financial entities are urged to prioritize the adoption of robust transaction monitoring systems and cost-effective technologies to fortify their anti-money laundering capabilities. Furthermore, by leveraging RegTech solutions, organizations can enhance compliance measures and better adhere to regulatory standards. This entails augmenting data analytics capabilities, implementing real-time monitoring systems, and automating screening processes to swiftly identify suspicious transactions.

Consequently, the study suggests that RegTech, RC, and ITI adoption can mitigate financial crime risks by facilitating faster and more accurate detection of illicit activities, thereby safeguarding the integrity of the financial system and bolstering trust in the banking sector. Lastly, it emphasizes the strategic investment in ITI and talent development as crucial for maximizing the benefits of RegTech adoption. Continuous training programs, collaboration with technology partners, and vigilance towards emerging threats and regulatory changes are vital for ensuring sustained effectiveness in MLP efforts. Overall, the study underscores the transformative potential of RegTech in fortifying MLP measures and advocates for proactive steps towards its implementation within the financial industry.

Future research could focus on longitudinal studies to assess the long-term impact of RegTech adoption on MLP efficacy. Exploring the role of emerging technologies like artificial intelligence and blockchain in enhancing detection capabilities, as well as investigating regulatory and ethical implications, would provide valuable insights. Additionally, comparative studies across jurisdictions could identify best practices for effective RegTech adoption. Addressing these areas could advance understanding and inform strategies for combating financial crime more effectively.

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