

Integration of Technology Acceptance Model (TAM), Marketing Relationships, and Sharia Compliance in Indonesia's Islamic e-banking

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Abstract

Purpose This research develops the expanded Technology Acceptance Model (TAM) to investigate the relationship between perceived usefulness and perceived ease of use with satisfaction and loyalty by considering the role of sharia compliance, commitment, and trust. **Research design, data and methodology:** A data source is 300 respondents from a self-administered survey. The target population is Muslims who are customers of Islamic banks, with age at least 18 years, and used e-banking to make payment transactions. The analysis methods are MANOVA and Multiple Linear Regression. **Results:** The results suggest that intention to use and actual behavior variables are replaced with satisfaction and loyalty. Commitment is not recommended, while trust is an explanatory variable that can be used as an external variable. **Conclusions:** It is important to increase satisfaction and commitment also concentrate to various aspects of sharia compliance to increase customer's loyalty to use e-banking. The fulfillment of sharia compliance by Islamic banks will increase the Islamic bank customers loyalty.

Keywords: Satisfaction, Loyalty, Trust, Commitment, Sharia Compliance

JEL Classification Code: G21, M31, O53

1. Introduction

Banks have utilized information technology to implement digital banking strategies or branchless banking so that customers can simply conduct banking transactions using ebanking without going to a bank or ATM. In the financial sector, the enactment of information technology to give customers comfort in financial services is known as financial technology [Fintech] (Hochstein, 2015). Fintech implementation strengthens the competitiveness of banks

because the presence of Fintech causes financial transactions to be efficient and convenient, lower in costs, and flexible because they can be accessed anytime and anywhere. Thus, both customers and banks benefit mutually.

Technology Acceptance Model (TAM) is commonly utilized to analyze information technology acceptance (King & He, 2006). Various empirical studies show that TAM has high validity (Liao & Landry Jr, 2000). However, researchers generally only analyze people's acceptance, adoption, or the use of technology. Even some studies, such

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as Zhao et al. (2018), Alzubi et al. (2018), Gefen and Rigdon (2011), and Wang and Benbasat (2004), focus their study on the intention of using technology. The limitation comes from the fact that TAM is based on Theory of Reasoned Action (TRA). According to Isaac et al. (2018), TAM applied research ignores the evaluation of technology use, such as, user satisfaction. The statement supports Tang and Ngunyen's (2013) opinion that academicians hardly incorporate satisfaction into TAM in online shopping research. Measuring the internet service accomplishment through user satisfaction is heavily suggested (Montesdioca & Macada, 2015). Therefore, particular consideration should focus on factors that retain consumers using Fintech. The continuity of use is the key to the resilience of the internet service provider, including m-banking or e-banking especially considering that getting a new customer is nearly five times more expensive than keeping the existing customers (Bhattacherjee, 2001).

Gustaffsson et al. (2006) have mentioned that satisfaction generally explains loyalty. Overall satisfaction positively affects customer loyalty in many product and service categories involving telecommunication services (Fornell, 1992; Fornell et al., 1996). Meanwhile, customer satisfaction also positively affects the length of relationships for cellular phone customers (Bolton, 1998). Bolton and Lemon (1999) find that overall satisfaction positively affects the usage of telecommunication subscription services. To sum up, satisfaction positively influences e-loyalty (Kim et al., 2009).

TAM is a model categorized as parsimonious and powerful (Gefen et al, 2003). However, TAM has several limitations, including inadequacy of the external variables (Sánchez-Prieto et al., 2016; Legris et al, 2003). This statement supports Davis et al. (1989), which have suggested taking into account external influences on the TAM construct. Many researchers have proposed extended models from TAM by adding various variables, especially those as antecedents of variables. Pantano and Di Pietro (2012) have found 149 external variables integrated into the original TAM, including satisfaction and trust. A recent study by Mulia et al. (2020) use extended TAM to analyze the role of customer intimacy in increasing loyalty in Islamic banks. Their study uses external variables such as perceived risk, trust, sharia compliance, and satisfaction.

Providing fintech services by banks is an actual effort to get a closer relationship with the clients. The key to a successful relationship in marketing is more about engagement and trust, rather than power or the capability to accustom others (Morgan & Hunt, 1994). Therefore, commitment and trust are mainly analyzed in the marketing field in the relationship marketing frame (Doney & Cannon, 1997; Ganesan, 1994; Ganesan & Hess, 1997; Morgan & Hunt, 1994; Dwyer et al., 1987). Commitment is an

eagerness to manage a connection (Moorman et al., 1993; Morgan & Hunt, 1994). Meanwhile, Trust is a crucial element for building and maintaining relationships (Usman et al., 2017). If the provision of fintech services is a relationship marketing action, then commitment and trust need to be considered in the analysis, especially in applying TAM.

Islamic banks are built based on sharia or Islamic rule (Usman et al., 2017). Thus, in Islamic banks, sharia compliance is a crucial pillar in operations, products, arrangements, methods, and the firm's characters (Sutedi, 2009). Thus, Fintech brought by Islamic banks has to accomplish the sharia compliance. Therefore, to overcome the TAM limitations, especially in the case of Fintech in Islamic banks, the inclusion of sharia compliance variables in the study as external variables are needed.

This study aims to investigate PU and PEOU on satisfaction and loyalty by acknowledging the function of sharia compliance, commitment, and trust. This research extends TAM and uses Indonesia's Islamic e-banking as case study. The originality of this research is the application of sharia compliance, commitment, and trust in the TAM model that has never been applied in previous literature. Our study contributes to the enhancement of TAM in marketing to propose policies that will improve the market share of Islamic banking in Indonesia.

2. Literature Review

2.1. Financial Technology

Researchers have made various definitions of Financial Technology or Fintech. Arner et al. (2015) have described Fintech as a financial solution embedded with technology that includes all services and products usually provided by the financial services industry. Previously McAuley (2014) has proposed a more pressing definition for companies using technology to build a more efficient financial system. While Kim et al. (2016) have developed definitions that emphasize technological devices.

Fintech is a technology that provides flexibility to move, easily to use (visualization of information), speed, and cost cheaper in term of financial services (Anikina et al., 2016), which will benefit customers and the companies. Therefore, in improving service quality while increasing competitiveness, banks, including Islamic banks, as one of the actors in the financial business, have a great interest in adopting these technologies.

2.2. TAM and Satisfaction

The theory of reasoned action [TRA] (Fishbein & Ajzen,

1975) is the basis of TAM developed by Fred Davis. TRA is a construct that shows the effect of subjective norms and attitude on behavioral intention, which is the actual behavior determinant (Ajzen & Fishbein, 1980). The original TAM (Davis, 1986) on the other hand, solely uses attitude as a determinant of a real system used. In TRA, attitude arises from faith (Piriyakul et al., 2015). Meanwhile, in TAM, the attitude appears from Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) (Davis, 1986). Davis et al. (1989) have found that attitude appears because users believe the system is accessible and useful. PU is the degree of individual faith that the practice would upgrade their work achievement (Davis, 1989). The PEOU is the level of personal perspective that the approach would be efficient or use minimum effort.

TAM has been widely recognized in the Information System (IS) studies as a theory for analyzing system management (Isaac et al., 2018) and is a robust and effective model (Venkatesh, 2000). However, the use of TAM to study evaluating technology usages, such as user satisfaction, is still very limited. At the same time, one of the essential functions of a model is to assess whether the system successfully provides satisfaction to users (DeLone & Mclean, 2003).

Customer satisfaction can be viewed as an evaluation of the overall performance of the products offered (Johnson & Fornell, 1991). In this study, user satisfaction is the level of satisfaction when people decide to use the internet and meet expectations (Wang, 2008; Wang and Liao, 2008; Roca et al., 2006). Satisfaction measures the affective component to be seen as one of the attitude dimensions (Adamson & Shine, 2003). Hence, some researchers replace the attitude variable with satisfaction in TAM. Thus, TAM can be modified into a belief-satisfaction-loyalty relationship. Research conducted by Tang and Nguyen (2013) has replaced attitude with satisfaction and trust.

Previous studies (such as Kim & Lee, 2013; Mather et al., 2002) have found that PEOU and PU's positively influence satisfaction. Meanwhile, Doll and Torkzadeh (1988) revealed the power of the ease of use variable on satisfaction by using the end-user computing satisfaction (EUCS) model. Furthermore, Tang and Nguyen (2013), who used system quality to reflect PU and PEOU, also found its effect on satisfaction. These results are in line with literature studies, such as Petter et al. (2008), Cheung and Lee (2005), Tan and Sutherland (2004). Various previous studies only found a positive effect of perceived ease of use on satisfaction (Isaac et al., 2018; Rana et al., 2015; Sun et al., 2008; Hong et al., 2006; Roca et al., 2006; Dalcher & Shine, 2003). Meanwhile, several other previous studies found the positive impact of PU on satisfaction (Isaac et al., 2018; Piriyakul et al., 2015; Sun & Mouakket, 2015; Rana et al., 2015; Kim, 2014; Barnes & Vidgen, 2014; Lee & Lehto,

2013; Revels et al., 2010; Ilias et al., 2009; Sun et al., 2008; Roca et al., 2006; Konradt et al., 2006; Dalcher & Shine, 2003; Doll & Torkzadeh, 1998). From the arguments and literature above, the proposed hypotheses are as follows:

H1: PEOU positively influences user satisfaction in a significant way.

H2: PU positively influences user satisfaction in a significant way.

In the marketing literature, satisfaction is an important factor that can enhance customer loyalty (Jarvis et al., 2016; Pérez & Del Bosque, 2015; Chen & Wang, 2016; Akbari et al., 2019). In using information systems, Kim et al. (2009) have described that satisfaction positively influences eloyalty. Meanwhile, Bhattacherjee (2001) has found that satisfaction is the driving force for reusing transactions. Therefore, the proposed hypothesis is:

H3: Satisfaction positively influences user loyalty in a significant way.

2.3. Trust and Commitment

The foundation of entire relationships was trust (Morgan & Hunt, 1994). Therefore, trust represented the outlook of the consumer connection and reflects consumer acts (Usman, 2015). Sarwar et al. (2012) have found some determinants influencing customer loyalty. However, trust is the most important one. Gudlaugsson and Eysteinsson (2013) have found that customers do not flee even if the bank will fall apart due to their expectations in their bank more than to other banks. Flavian and Guinaliu (2006) have revealed that the individual's adherence to the website and the degree of trust have a strong relationship. Meanwhile, Piriyakul et al. (2015) have showed that trust positively influences the intention to reuse in the internet purchasing context.

Trust is a crucial aspect of internet business dealing because its performance is based on uncertainty and errors from non-human factors (Piriyakul et al., 2015). Trust will positively impact technology reuse, while distrust is the crucial barrier in e-business activities (Gefen et al., 2003). Various previous researchers have used trust as an external variable integrated into TAM (see Alzubi et al. (2018); Zhao et al. (2018); Piriyakul et al. (2015), Tang & Nguyen (2013); Gefen et al. (2003); Belanchea et al. (2012); Chircu et al. (2000); Palvia (2009)).

Trust was an enthusiasm to cooperate with reliable trade partners with integrity (Moorman et al., 1992). Moreover, Moorman et al. (1993) state that the consumer's trust indicates its certainty in principle, honesty, cooperation, loyalty, and company capacity. Anderson and Narus (1990) reveal that trust occurs when an individual considers that the other individual will respond so that it positively results in their interests and will not return, which has a negative consequence.

The trust and satisfaction connection is still unclear. Martin et al. (2011) stated that the influence of satisfaction on trust remained constant regardless of other factors. Contrary to Martin et al. (2011), Kim et al. (2009) have declared that trust's effect on satisfaction is not statistically tested. Piriyakul et al. (2015) have hypothesized that trust directly affects loyalty without mediation satisfaction. Several studies, such as the internet purchase in Iran by Amini and Akbari (2014), the brand loyalty in South Africa by Chinomona (2013), the loyalty of internet purchase by Doong et al (2008), and the loyalty to the internet purchase in South Korea by Jin and Park (2006), found that trustworthiness effects toward satisfaction.

Some empirical research, such as Gefen et al. (2003), Tang and Chi (2005), Tang and Nguyen (2013), have found that and PU (information quality) and PEO (system quality) positively impact trust. Meanwhile, Piriyakul et al. (2015) have found that PEOU has a positive power on faith, and Nicolaou and McKnight (2006) have discovered that information quality (PU) has positive impacts on trust in the inter-organizational context. Our research proposes the following hypotheses:

H4: Perceived ease of use positively influences trust in a significant way.

H5: Perceived usefulness positively influences trust in a significant way.

H6: Trust positively influences user satisfaction in a significant way.

H7: Trust positively influences user loyalty in a significant way.

Commitment is described as an ambition to maintain a valuable relationship (Moorman et al., 1993; Morgan & Hunt, 1994). Relationship commitment shows the exchange partner believes in the relationship that has been running as something fundamental and valuable to be maintained. Therefore, commitment is essential for profitable long-term connection building (Morgan & Hunt, 1994). Developing client commitment to business relationships has a positive impact on increasing profits, client retention, and willingness to refer and recommend. Commitment implies the significance of the connection and their desire to maintain the link in time to come (Wilson 1995). Marketing literature indicates that commitment is one of the factors that can drive customer loyalty (Bendapudi & Berry 1997; Morgan & Hunt 1994). Even though commitment has a significant role in long-term relationships with consumers because it is a determinant of loyalty, this variable, to the authors' knowledge has never been used as an external variable in TAM.

As shown in several empirical studies (such as Ganesan, 1994; Geyskens et al., 1996; Moorman et al., 1992; Morgan & Hunt, 1994; Walter, 1999), trust and commitment depend on each other, but trust positively impacts commitment. The

same results are also shown by research conducted by Mukherjee and Nath (2003), which found that trust significantly positively affects commitment in online transactions.

As previously mentioned, as far as researchers know, commitment has never been used as a variable in TAM, so there is no literature or empirical study that reveal the connection between PU and PEOU with commitment. However, given that trust is a determinant of commitment, whether PU and PEOU have a direct relationship with commitment can be explored. Thus, this study proposes the following hypotheses:

H8: Perceived ease of use positively influences commitment in a significant way.

H9: Perceived usefulness positively influences commitment in a significant way.

H10: Trust significantly positively influences commitment in a significant way.

H11: Commitment positively influences user loyalty in a significant way.

2.4. Sharia Compliance

Islamic banks implement a 'sharia-compliant financial system' (Usman et al., 2017). As a result, the technology use, such as e-banking, must also comply with sharia. Therefore, sharia compliance is a crucial variable to study. Ramdhani et al. (2011) and Amin and Isa (2008), in their study of Islamic banks, have revealed that sharia compliance positively impacts customer satisfaction in a significant way. Meanwhile, Sobari et al. (2017) and Usman et al. (2017) demonstrated that shariah compliance has a positive influence on satisfaction in the sharia hotel circumstance.

In Islamic teachings, trust has a very high value, and "trustworthiness" is the character of a Muslim (Iqbal & Mirakhor, 2007). Customer trust in a bank can arise when the bank shows various dimensions of trust, such as: reliability (trustworthy), honesty, fairness, equality as a human being, and moral values (Hanafi & Sallam, 1997). However, in an Islamic bank, it is also necessary for a bank to show its "Islam". Therefore, trust can arise from how the customers perceive the compliance of Islamic banks to sharia compliance, mainly to provide technology such as e-banking. It means that sharia compliance can reflect Islamic bank customer trust.

While it is suspected that the relationship between sharia compliance and commitment exists, the author could not find this literature study. However, considering that trust significantly affects a commitment to online transactions (Mukherjee & Nath, 2003), it can be proposed that sharia compliance can also be a determinant of commitment.

From the literature above, this study proposes hypotheses as follows:

H12: Sharia compliance positively affects satisfaction in a significant way.

H13: Sharia compliance positively affects trust in a significant way.

H14: Sharia compliance positively affects commitment in a significant way.

H15: Sharia compliance positively affects user loyalty in a significant way.

3. Research Methods and Materials

This research is a quantitative study. The target population is Muslims, Islamic banks customers, age 18 years or older, and use e-banking to make payment transactions. Questionnaires were distributed to respondents online, and a self-administered survey method was used. The number of samples were 300. The item statements in the survey refer to various sources. The item of PU and PEOU followed Lai and Li (2005). The customer satisfaction adapted from Amin (2016) and Lai and Li (2005). The customer loyalty referred to Amin (2016). The commitment followed Gustaffsson et al. (2006). The trust adopted from Pavlou (2003), and Usman, et al. (2017). The sharia compliance adopted from Ahmad and Al-Aidaros (2017) and Ramdhani (2011). All variables, as mentioned above, are measured using a five-point Likert Scale (1 - strongly disagree at all; 5 – strongly agree).

The Multivariate Analysis of Variance (MANOVA) is applied to evaluate the effect of PU, PEOU, and sharia compliance on satisfaction, trust, and commitment. The impact of trust on satisfaction and commitment will be tested using the same analysis method. Finally, the study uses the Multiple Linear Regression model to analyze the effect of trust, satisfaction, commitment, and sharia compliance on loyalty. The model can be written as:

Loyalty =
$$\beta_0 + \beta_1 Trust + \beta_2 Satisfaction$$

+ $\beta_3 Commitment$
+ $\beta_4 Sharia\ Compliance + \varepsilon_1$ (1)

4. Results and Discussion

The study shows that the data supports Hypotheses 1 and 2. PEOU significantly affects Satisfaction (F = 138.486, p-value = 0.000) and PU (F = 11.187, p-value = 0.001). The results of the statistical tests follow various previous studies, such as, Kim and Lee (2013), Tang and Nguyen (2013), Mather et al. (2002), Doll and Torkzadeh (1988). However, the data do not support Hypothesis 12. Statistical test results show that sharia compliance insignificantly affects satisfaction (F = 0.872, p-value = 0.351). Thus, this outcome

does not support the research conducted by Ramdhani et al. (2011), Amin and Isa (2008), and Sobari, et al. (2017).

Based on the statistical tests above, fulfilling sharia compliance is not a driver of customer satisfaction. As an Islamic bank, it should follow Islamic laws and teachings so that the fulfillment of sharia compliance is no longer a privilege for customers of Islamic banks, which causes customers to be satisfied. Fulfilling compliance is only special to attract attention or get new customers as a differentiator from conventional banks. After becoming a customer, the demand for services provided by the Islamic bank is more important in generating customer satisfaction.

PEOU significantly affects trust (F = 12.714, p-value = 0.000). The sharia compliance significantly affects trust (F = 15.410, p-value = 0.000). However, PU insignificantly affects trust (F = 2.587, p-value = 0.109). This result supports the statement from Piriyakul et al. (2015). The study conducted by Tang et al. (2003) regarding the online transaction in Taiwan finds that PU insignificantly affects trustworthiness. So, confidence in increasing performance due to Fintech does not encourage customers to trust but encourages customers to be more satisfied.

Regarding factors that affect commitment, it turns out that only sharia compliance significantly influences commitment (F = 20.926, p-value = 0.000), whereas PEOU do not significantly effect on commitment (F = 1.259, p-value = 0.623), as well as PU has insignificant influence on commitment (F = 0.298, p-value = 0.586). Adamson and Shine (2003) stated that satisfaction is one of the attitude dimensions. Piriyakul et al. (2015) have used satisfaction and trust as a substitute for attitude in applying TAM. The results of this study indicate that commitment cannot replace attitudes, and commitments are not for TAM.

The next MANOVA model shows that trust significantly affects satisfaction (F=332.106, p-value = 0.000). This result is in line with studies of Amini and Akbari (2014), Chinomona (2013), Martin et al. (2011), Doong et al. (2008), and Jin and Park (2006). Therefore, the trust and satisfaction relationships are increasingly clear. Trusts also significantly affects commitment (F=378.461, p-value = 0.000). The results are well known by the academicians, because it is similar to various previous studies, such as Ganesan (1994), Geyskens et al. (1996), Moorman et al. (1992), Morgan and Hunt (1994), and Walter (1999).

The impact of satisfaction, trust, commitment, and sharia compliance on loyalty as the estimation results of the Multiple Regression Model (see Table 1) is:

$$Loyalty = -0.191 + 0.597 Satisfaction + 0.105 Trust + 0.332 Commitment (2)$$

Regression equation reveals that the data support

Hypothesis 3 (t-statistic = 11.371; p-value = 0.000). Satisfaction has a significant positive effect on the loyalty to use e-banking. The result is not surprising because the impact of satisfaction on loyalty is common among academics or practitioners. The statistical hypothesis test has also found that data support hypothesis 11 (t-statistic = 6.276; p-value = 0.000). The commitment has a significant positive impact on the loyalty to use e-banking, which supports the research of Wilson (1995), Bendapudi and Berry (1997), and Morgan and Hunt (1994).

Table 2: Multiple linear regression results

Variable	Coefficie nt	Standard Error	t- Statistics	p- value
С	191	.154	-1.238	.217
Trust	.105	.059	1.785	.075
Commitmen t	.332	.053	6.276	.000
Satisfaction	.597	.052	11.371	.000

Unlike the two variables above, trust has no significant impact on loyalty (t-statistic = 1.785; p-value = 0.075). This result is different from several previous studies, such as Sarwar et al. (2012), Gudlaugsson and Eysteinsson (2013), Flavian and Guinaliu (2006), and Piriyakul et al. (2015). This study reveals that trust does not directly affect loyalty but indirectly affects mediation satisfaction and commitment. In other words, trust is not enough to encourage customers to be loyal, but trust can make customers satisfied and have a high commitment, which will increase loyalty.

This study has become additional literature on evaluating the use of technology using TAM, which is still rare, as stated by Isaac et al. (2018), Tang and Ngunyen (2013), and Montesdioca and Macada (2015). The Extended TAM analyzes how e-banking in Islamic banks can be done by replacing attitudes with satisfaction and trust, as suggested by Adamson and Shine (2003) and Piriyakul et al. (2015), but commitment is not suit as a substitute for attitude. Therefore, it is not recommended to use commitment to modify TAM. Nevertheless, a commitment influences loyalty and is a mediating variable of trust and loyalty relationships, so commitment can still be considered an external variable, particularly when studying factors affecting loyalty.

PEOU positively influences satisfaction and trust but does not influence commitment. This condition shows that satisfaction and trust are built from the beliefs of Islamic bank customers that the system is energy saving or effortless. At the same time, the commitment arises after Islamic bank customers have trust in the provider. In other words,

perceived ease to use affects commitment indirectly through trust as mediation.

Meanwhile, perceived usefulness only affects satisfaction and does not influence trust and commitment. Thus, the confidence in improving performance due to using e-banking will increase customer satisfaction, but not increase trust and commitment. Besides that, this result also reveals that the two variables influence the satisfaction in this original TAM. These results reinforce that attitude variable can be replaced with satisfaction in TAM, which is used to evaluate technology use, in this case, e-banking in Islamic banks.

Sharia compliance has no impact on satisfaction but affects the loyalty of Islamic bank customers. It means that sharia compliance in controlling loyalty does not need mediation satisfaction. In other words, banks' fulfillment of sharia compliance will make Islamic banks customers loyal, even if the bank customers are not necessarily satisfied with the services received.

Even if it does not affect satisfaction, sharia compliance influences trust and commitment. Thus, sharia compliance can build loyalty directly and indirectly through mediation commitments. In other words, sharia compliance reflects the customer trust and commitment to Islamic banks. The inadequacy of sharia compliance attainment by Islamic banks may reduce customer trust and commitment to Islamic banks, which will reduce customer loyalty. Since sharia compliance also directly influences customer loyalty, the total impact of lack of compliance with sharia compliance will cause significant problems for Islamic banks.

5. Conclusions

The results of this study offer conclusion that lead to managerial implications. Suppose the manager wants to increase Islamic bank customer's loyalty to use e-banking. In that case, the satisfaction and commitment must also be increased and meet various aspects of sharia compliance. Islamic bank customer satisfaction can be increased by constantly improving website quality and information. Therefore, the customers know that technology is used in an efficient and valuable way. Meanwhile, commitment can be increased if the customer trust level on an Islamic bank can also be increased, which in this context can be done by providing easy-to-use or user-friendly technology.

The sharia compliance by Islamic banks is important aspect to increase the Islamic bank customers loyalty. Sharia compliance can make Islamic bank customers loyal without having to feel satisfied because sharia compliance directly affects loyalty. Besides that, sharia compliance reflects the commitment of Islamic banks, which involves loyalty and

customer trust in Islamic banks that indirectly impact reliability through the mediation of satisfaction and engagement. The application offered by Islamic banks has to make customers experience sharia compliance. When Islamic banks fail to do so, the customer may question the difference between Islamic banks and conventional banks.

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