

The Adoption of a Mobile Payment Application by Small Businesses in Indonesia

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Mobile payment is an engaging prospect that has recently flourished because of the appearance of smartphones and their applications. The research examined the intention of SMEs to embrace mobile payment. The advanced study model was generated by expanding the unified theory of acceptance and use of technology (UTAUT) to ascertain the significant determinants that affect the acceptance of mobile payment technology. The method of sampling was area sampling among 164 food and beverage SMEs in Jakarta, Indonesia. The investigation utilised binary logistic regression with SPSS 20 for data examination. Performance Expectancy; Effort Expectancy; Social Influence; Facilitating Conditions; Perceived Technology Security; and Trust had a positive and noteworthy influence on mobile payment adoption.

Key words: *Mobile Payment, Adoption, Merchants, SME, UTAUT.*

Introduction

Mobile payment as a payment order that utilises mobile gadgets to conduct a business transaction is a trending innovation in the retail industry nowadays (Au & Kauffman, 2008; Dahlberg & Ondrus, 2008; Kim, Mirusmonov, & Lee, 2010). Mobile payment has directed to an intense cultural and financial consequence on payment ecosystems. Consequently, cellular payment structures have been presented for shopping on the web and mobile commerce and acquisitions of numerous merchandises and services inside the real world (Mallat & Tuunainen, 2008). From the businessperson's point of view, the adoption of mobile payment structures by merchants or retailers are assumed to diminish the charges, produce returns, and raise the deals of merchandises and services to clients, at all times and for most areas. It also

allows organisations to advance service standards with clients (Frolick & Chen, 2004; Mallat & Tuunainen, 2008; Sellitto, Phonthanakitithaworn, & Fong, 2016; Zhou, 2013).

The expansion of mobile commerce, especially within the business-to-consumer sector, demands ubiquitously convenient, all-inclusive, admitted easy-to-use, and secure procedures of instalment (S. W. Wang, Ngamsiriudom, & Hsieh, 2015). Small businesses have limited capabilities to utilise the card policies for discretionary instalments. Other than their high clearance costs for shippers, conventional card instalment strategies are slow and inconvenient for buyers. Merchants accept credit/debit cards where high-density trade capacities financially are beneath the pressure of the market (Humphrey, Dewan, & Oswald, 2009).

According to a business survey conducted by AT & T, 72% of businesses have used mobile apps, and 40% of SME businesses have used technology tools for their business activities. The venture capital company owned by Telkom Group (MDI Ventures) with Mandiri Sekuritas made a report on mdi.vc/mobilepaymentindonesia in 2019 about the development of mobile payment services at the beginning of 2018. According to Telkom Group, the business value of mobile payments in Indonesia is predicted to reach Rp459 trillion by 2020. The impressive growth of mobile subscriptions can induce an enormous potential for mobile payments to prevail in retail.

Many scholars have examined the antecedents of mobile payment adoption by consumers (Chin & Ahmad, 2015; Cobla & Osei-assibey, 2018; Dinh, Nguyen, & Nguyen, 2018; Fan, Shao, Li, & Huang, 2018; Hampshire, 2017; Koenig-lewis, Marquet, Palmer, & Lifan, 2015; Oliveira, Thomas, Baptista, & Campos, 2016; Osei-Assibey, 2015; Qasim & Abu-Shanab, 2016; Ramadan & Aita, 2018). However, this research is trying to distinguish a comprehensive collection of potential variables affecting the appropriation of mobile payment by the merchant in Jakarta. Jakarta, as the capital city of Indonesia, reflects the most suitable place for area sampling, since in 2018 Jakarta had the most internet users in Indonesia, according to the Indonesia Internet Service Provider Association, published at apjii.or.id. Korella, Jan Lukas & Li, Wenwei (2018); Mallat, Niina & Tuunainen, Virpi Kristiina (2005); and Lai, P.M. & Chuah, K.B. (2010) (Korella & Li, 2018; Lai & Chuah, 2010; Mallat & Tuunainen, 2005) have been conducting studies that examine the antecedents of mobile payment adoption by retailers. The main determinants impacting innovation adoption by organisations are adopter characteristics, supplier retailing effort, unique discovery features, social flows, and environmental forces (Apanasevic, Markendahl, & Arvidsson, 2016). This study adopted the research model proposed by Oliveira, Tiago et al. (2016) (Oliveira et al., 2016) and Mallat, Niina & Tuunainen, V.K. (2005) (Mallat & Tuunainen, 2005) in the setting of the adoption of mobile payment by merchants in Jakarta.

More notably, the attention is to construct a model of mobile payment adoption. Moreover, to provide more reliable recognition of the appropriation of mobile payment by the merchant. The outcomes are to develop the knowledge of the inherent benefits of mobile payment and optimise the appropriation of the mobile payment model. This article may contribute to existing mobile commerce and acceptance investigation through conferring a particular explanation of constituents that intensify and restrain mobile payment adoption and by proffering premises concerning the future investigation of this emerging topic.

Literature Review

Mobile Payment

Portable instalment is related to the utilisation of portable gadgets, such as laptops, tablets, and cell phones (Ramadan & Aita, 2018). The cellular application is a program outlined to run on versatile gadgets (Connors & Sullivan, 2010). Portable instalment alludes to the utilisation of portable gadgets to electronically transfer funds from payer to different beneficiary, both via direct payment or through a mediator (Mallat & Tuunainen, 2008; Zhang & Dodgson, 2007). Portable instalment could be an exchange of funds in return for merchandise or services, where portable phones are included both in initiation and instalment affirmation (Au & Kauffman, 2008). The portable instalment application incorporates all merchandise, administration, and official bills, or begins within the instalment preparation with cellular telecommunications gadgets from different businesses (e.g., information technology, finance, retail, and media) for end clients (Dahlberg, Mallat, Ondrus, & Zmijewska, 2008). The theoretical framework of the research was represented from the diffusion of innovation theory (Rogers, 1995), while the frame of mind in this study was the result of collaboration with research V. Venkatesh, et al. (2003); A. A. Alalwan, et al. (2017); and Oliveira, Tiago et al. (2016) (Alalwan, Dwivedi, & Rana, 2017; Oliveira et al., 2016; Venkatesh, Morris, Davis, & Davis, 2003) where the concept of UTAUT as the basic theory of research was used.

Performance Expectancy

Performance expectancy is characterised as a level for people to accept the utilisation of a framework or innovation that can give benefits and offer assistance to progress their execution at work. This concept portrays the benefits of innovation frameworks for users that are related to observed usefulness, external impulse, work fit, and relative advantage (Venkatesh et al., 2003). Perceived usefulness includes a more grounded and significant relationship with data frameworks (Davis, 1989). Perceived usefulness could be a critical determinant of the readiness of people to use the framework (Taylor & Todd, 1995; Venkatesh et al., 2003). The building of performance expectations could be a reliable



indicator of intrigue within the utilisation of IT in deliberate and obligatory settings (Venkatesh et al., 2003), (Taylor & Todd, 1995), (Compeau & Higgins, 1995), (Thompson, Higgins, & Howell, 1991). As portable gadget manufacturers, mobile payments can result in a growth of transactions to new or existing clients (Boer & Boer, 2009; Dennehy & Sammon, 2015; Mallat & Tuunainen, 2008; Venkatesh et al., 2003)

Effort Expectancy

Business expectations are a level of convenience associated with the advantage of customer technology. Effort expectancy contributes to the right predictions to adopt a new technology (Miltgen, Popovič, & Oliveira, 2013). It is the level of ease of use in practice that will diminish the effort in both the energy and time of people in carrying out their tasks. The three constructs that make up this concept are perceived ease of use, ease of use, and complexity (Venkatesh et al., 2003). Ease of use influences the use of information technology (Davis, 1989), (Adams, Nelson, & Todd, 1992; Igbaria, Zinatelli, Cragg, & Cavaye, 1997). The ease of use of IT will lead to feelings in a person that the system has a function and hence, creates a sense of comfort when they work with it (Venkatesh et al., 2003). The complexity that can form constructs of business expectations at the level at which innovation is seen as something that is approximately hard to interpret and utilise by individuals (Au & Kauffman, 2008), (Venkatesh et al., 2003), (Dennehy & Sammon, 2015). Business expectations are determinants of interest in system utilisation. Business expectations have a significant relationship with interest in using IT only during the post-training period, but then it becomes insignificant in the implementation period. This is consistent with prior studies (Davis, 1989; Thompson et al., 1991; Venkatesh et al., 2003), (Petrova & Wang, 2013).

Social Influence

Social influence is defined as the extent to how a person views the meaning of the work situation portions in the application of a new system. Social factors are described as the level at how a person assumes that another person assures himself that he must use a new order. Social factors as direct determinants of interest in the use of IT are represented by related constructs, namely subjective norms, social factors, and images (Venkatesh et al., 2003). In specific environments, the use of IT will improve the status (image) of someone in the social system (Moore & Benbasat, 1991). There is a significant positive association between system users' social factors, where the support of work associates, senior managers, leaders, and organisations determined social factors. (Thompson et al., 1991). Whereas (Davis, 1989) there is no significant relationship between social norms and IT utilisation.

Facilitating Conditions

Facilitating conditions denote the level at how a person considers that an organisation and technological support exist to encourage the usage regarding the system. Inner and outer controls (pictured as computer self-efficacy and facilitating conditions, sequentially), inherent motive (portrayed as computer playfulness), and sentiment (portrayed as computer stress) as pillars define early thoughts concerning the ease of use of a new system (Venkatesh, 2000). As an innovation, mobile payments encourage technology suppliers with the possibility to perform as a trusted mediator between banks and mobile network operators (Venkatesh, Thong, & Xu, 2012).

Perceived Technology Security

Perceived technology security examines the possible reactions of scepticism in accepting a technology (Cheng, Lam, & Yeung, 2006). Earlier investigations have inferred that safety matters are an inhibitor with innovations where financial data is maintained (Cheng et al., 2006; Pavlou & Fygenson, 2017; Salisbury, Pearson, Pearson, & Miller, 2001). In administering financial activities a sense of protection is fundamental to reduce anxieties concerning this adoption of innovation in creating portable payments (Salisbury et al., 2001).

Trust

Trust toward the instalment settings indicates that users hold assurance into the capacity, honesty, and altruism regarding the service provider (Lee, Kang, & McKnight, 2007; McKnight, Choudhury, & Kacmar, 2002). Users may originally build their assurance into online instalment with continually associating beside the service furthermore implement their understandings to online payment in appraising portable payment (Delgado-Ballester & Hernández-Espallardo, 2008). Subsequently, the trust of users in the root of the well-established online payment can determine their faith in the purpose of the advanced mobile payment. Lu, Y., Yang, et al. (2011) and Wang, N., et al. (2013) discovered that the trust of users in the online settings of an association could positively influence their confidence in the mobile complement of such settings (Lu, Yang, Chau, & Cao, 2011; N. Wang, Shen, & Sun, 2013).

Materials and Methods

This study was categorised as descriptive-associative research, and the questionnaire was constructed to examine the theoretical frame and hypotheses, in consideration that the survey can provide a record of issues to respondents to collect replies. The unit of analysis comprises mobile payment of SMEs merchants in the food and beverage sector in Indonesia. The questionnaire was filled out by the business owner as a representative of the SME. The

research gathered data in the one-shot series of time. Moreover, this is simpler for analysis as it includes regular obtained data suppressed to precise quantitative examination (Sekaran, 2003). Area sampling is used to choose the respondents. With a total population of 278, the research targeted 164 small businesses in Indonesia represented by merchants in Jakarta as respondents, calculated utilising the Slovin formula. This research applied a Logistic Regression model to define a binary reply basis for a merchant's choice to either adopt or reject the mobile payment. A logistic regression model is represented in terms of the odds ratio, which describes the possibility of the situation happening over the potential of the situation not happening (Hosmer & Lemeshow, 2000). Estimating parameter values in logistic regression is using the MLE (Maximum Likelihood Estimation) method.

Results and Discussion

Table 1 represents the respondents' profile. As presented in Table 1, business owners as respondents in this study were the majority male (62%) and the majority of the level of education was a bachelor's degree (74%). 45% of respondents running a business are still less than 1 year old. 55% of respondents have an annual income level <100 million. Most business owners as respondents claimed to know about mobile payments from family/friend/partner (91%). All respondents claimed to use mobile payment for marketing/promoting businesses.

Table 1: Respondents' Profile

Variable	Frequency (n=164)	Percent (Total 100%)
Gender		
Male	101	62%
Female	63	38%
Education Level		
Senior high school	42	26%
Bachelor's Degree	122	74%
How long the businesses have been operating		
<1 year	74	45%
1-5 years	62	38%
> 5 years	28	17%
Annual income in rupiah		
<100 million	91	55%
100-500 million	73	45%
From where owners found out about mobile payment application		
Other merchants	143	87%
Family/friend/partner	150	91%
Social Media	85	52%

Variable	Frequency (n=164)	Percent (Total 100%)
The objective of using a mobile payment application		
Receiving payment easier	138	84%
Marketing/promotion	164	100%
Being afraid of losing in competition	107	65%

Thus, the results of the Confirmatory Factor Analysis (CFA) are presented in Table 2. The Measure of Sampling Adequacy (MSA) Kaiser-Meyer-Olkin (KMO) of 0.870; 0.758; 0.775; 0.599; 0.710; and 0.723, sequentially as presented in Table 2, which is higher than 0.5 so all of the constructs are accepted as valid. The component matrix was formed in one; this means that the indicators were valid and formed one factor, namely Social Influence, Facilitating Conditions, Performance Expectancy, Effort Expectancy, Perceived Technology Security, and Trust.

The Sig. Bartlett's Test of Sphericity is 0.000 below alpha of 0.05, which means the relationship between these indicators is strong and the factor analysis of each indicator is valid and reliable. Measures of Sampling Adequacy (MSA) in Anti-image Correlation for each indicator also confirms that each of the indicators is greater than 0.5, which means the indicators can be predicted and can be analysed further.

Table 2: Respondents' Profile

Indicator	Component Matrix - Component 1	KMO Measure of Sampling Adequacy	Sig. Bartlett's Test of Sphericity	Anti-image Correlation - (MSA)
Performance Expectancy				
PE_1	0.757	0.870	0.000	0.928
PE_2	0.847			0.913
PE_3	0.729			0.927
PE_4	0.697			0.894
PE_5	0.855			0.865
PE_6	0.786			0.832
PE_7	0.819			0.821
PE_8	0.804			0.890
PE_9	0.753			0.853
PE_10	0.825			0.821
Effort Expectancy				
EE_1	0.864	0.758	0.000	0.685
EE_2	0.716			0.857
EE_3	0.774			0.874

Indicator	Component Matrix - Component 1	KMO Measure of Sampling Adequacy	Sig. Bartlett's Test of Sphericity	Anti-image Correlation - (MSA)
EE_4	0.636			0.784
EE_5	0.849			0.701
Social Influence				
SI_1	0.689	0.775	0.000	0.800
SI_2	0.628			0.758
SI_3	0.843			0.905
SI_4	0.845			0.749
SI_5	0.847			0.698
Facilitating Conditions				
FC_1	0.832	0.599	0.000	0.594
FC_2	0.839			0.644
FC_3	0.789			0.590
FC_4	0.861			0.573
Perceived Technology Security				
PTS_1	0.826	0.710	0.000	0.763
PTS_2	0.850			0.686
PTS_3	0.867			0.691
Trust				
TRU_1	0.857	0.723	0.000	0.769
TRU_2	0.848			0.724
TRU_3	0.800			0.686

Sig value from Hosmer and Lemeshow Test is 0.941, which is higher than alpha 5%, this means that the model is fitted with the data. Wald value is compared with $Z_{\alpha/2}$, which has to be higher than 1.96, to test the presence of significant influence among independent and dependent variables. Sig value is compared with alpha which has to be higher than 5%. The results showed that Trust, Perceived Technology Security Social Influence, Facilitating Conditions, Performance Expectancy, Effort Expectancy, had a significance influence on Mobile Payment Adoption. Overall percentage is as much as 98.8%. The higher the percentage, the more feasible the logistic regression model. Thus, the logistic regression model used was good because it had predicted correctly 98.8% of the conditions that occurred.

Negargarke R-Square in this study is in the amount of 0.806, which means that Social Influence; Facilitating Conditions; Perceived Technology Security; Trust; Performance

Expectancy and; Effort Expectancy influenced Mobile Payment Adoption as much as 80.6%, while other variables explain the remaining 19.4%.

Table 3: Logistic Regression Model

		Variables in the Equation					
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	PE	4.100	4.006	2.048	1	.031	60.361
	EE	1.243	2.892	2.007	1	.039	3.468
	SI	3.013	4.579	1.933	1	.048	20.353
	FC	4.431	3.358	5.741	1	.019	84.005
	PTS	1.548	1.249	4.536	1	.022	4.702
	TRU	2.265	1.770	3.638	1	.020	9.629
	Constant	3.228	13.181	5.978	1	.014	25.229

a. Variable(s) entered on step 1: PE, EE, SI, FC, PTS, TRU.

Note: PE - Performance Expectancy; EE - Effort Expectancy; SI - Social Influence; FC - Facilitating Conditions; PTS - Perceived Technology Security; TRU – Trust

Regression models are presented in Table 3. Table 2 and Table 3 are the results of the logistic regression test using the SPSS application. Based on variables in the equation, it can be concluded that Trust, Perceived Technology Security, Social Influence, Facilitating Conditions, Performance Expectancy and Effort Expectancy, simultaneously held a positive and notable effect toward the adoption regarding mobile payment. Concerning column B, the logistic regression model is represented as follows:

$$\ln \pi(x)/1 - \pi(x) = 3.228 + 4.100 \text{ PE} + 1.243 \text{ EE} + 3.013 \text{ SI} + 4.431 \text{ FC} + 1.548 \text{ PTS} + 2.265 \text{ TRU}$$

Each increase in Performance Expectancy by one point, increases the tendency to adopt mobile payment 60,361 times. Increasing Effort Expectancy by one point, increases the tendency to adopt mobile payment 3,468 times. Increasing Social Influence by one point, increases the tendency to adopt mobile payment 20,353 times. Increasing Facilitating Conditions by one point, increases the tendency to adopt mobile payment 84,005 times. Increasing Perceived Technology Security by one point, increases the tendency to adopt mobile payment 4,702 times. Increasing Trust by one point, increases the tendency to adopt mobile payment 9,629 times. In other words, the higher Social Influence, Facilitating Conditions, Perceived Technology Security, Trust, Performance Expectancy, Effort Expectancy, the more the tendency of SMEs in Indonesia to utilise portable payment will increase.

The increase of sales with a parameter estimate of 0.855 was the most significant parameter amid another dimension under the Performance Expectancy regard. Following the respondents' evaluation, the adoption of mobile payment could expand sales and improve the image of the store or merchant. Mobile payment systems are capable of enhancing customer satisfaction and loyalty, increasing product sales and revenues (Dahlberg, Mallat, & Öörni, 2003; Dewan & Chen, 2005; Lai & Chuah, 2010; Mallat & Tuunainen, 2008; Petrova & Wang, 2013; Venkatesh et al., 2003). In its entirety, mobile payment has the potential to drive financial development through the opening of inventive trade, the advertising of new services, the progress of commerce operational efficiencies, and the empowerment of computing insights in communities. Mobile payments have the potential to extend drive buys since they make it conceivable for buyers to purchase things the minute they have the stimulus to purchase (Mallat & Tuunainen, 2005).

Perceived Ease of Use by a parameter estimate of 0.864 was the most significant parameter amid another dimension in the Effort Expectancy regard. Following each respondents' evaluation, payments by mobile payment are easy to accept (user-friendly). On the off chance that the framework is user-friendly, the client may consider an extra prominent authority above the framework beside advantages at the self-viability to this framework utilisation (Pantano & Pietro, 2012). If the instalment handle takes too much time and is complicated, it would de-motivate the client and he/she will abstain from utilising other web exercises as well (Sevgi Ozkan, Gayani Bindusara, & Ray Hackney, 2010). The most related issue is that the transaction must be easy to use by the customer regardless of how sophisticated the operation may be (Eze, Goh, Gan, Ademu, & Tella, 2008). For retailers and service providers, this latest instalment solution should be simple to combine into systems that already existed and simple to prepare throughout the transaction (Davis, 1989; Mallat & Tuunainen, 2005, 2008; Mas & Ng'weno, 2010; Venkatesh et al., 2003; Wixom & Todd, 2005).

Network externalities with parameter estimates of 0.798 were the most significant parameter among other dimensions in the Facilitating Conditions aspect. Following the respondent's evaluation, given these sources, fitness, and expertise needed to utilise the system, it is easy to utilise the system in order to adopt mobile payment applications. Slow access speed, benefit inaccessibility or interference of an untrustworthy framework will lower users' discernment of utility of benefit. Hence, portable benefit suppliers got to show healthy Facilitating Conditions to clients (Thakur & Srivastava, 2014). The interface is defended on the reality that within the nonattendance of a coordinate framework involvement, the certainty in a person's innovation-related capacities also information can be anticipated to work as the premise for an individual approximate decision on whence simple or difficult a modern framework will be to apply.

Business Image, with an estimated parameter of 0.847, was the most significant parameter among the other dimensions of the Social Influence aspect. Following the respondents' evaluation, providing a mobile payment terminal creates a positive business image and it means that SMEs are following the current trend. Portable instalments could produce a particular influence on the corporation's image, and they supported the innovative company image (Mallat & Tuunainen, 2005). Other than the seen value, the desire to pick up a moving forward social image could be an essential reason behind the appropriation of advancements (Rogers, 1995), (Yang, Lu, Gupta, Cao, & Zhang, 2012). In like manner, people judge an innovation concurring to whether it will move forward their social image or not. At that point, they will profoundly esteem the framework. The significant association within a social image also seen esteem can be experimentally bolstered by reflecting past inquiries (Hsiao, 2013).

Overall mobile payment is a trustworthy area to convey sensitive data, with an estimated parameter of 0.861, which was the largest parameter among the other indicators of the Perceived Technology Security aspect. The significant correlation within perceived technology security, also mobile payment adoption, is held in line with the study proposed by Cheng, Lam & Yeung (2006) as well as Cheng et al., (2006). Mobile payment is accountable and efficient in administering financial settings, with an estimated parameter of 0.857, which was the most significant parameter among the other indicators of the Trust aspect. The positive relationship between trust and mobile payment adoption was in line with the study proposed by A. A. Alalwan et al. (2017); Cao, Xiongfei et al. (2018); Mondego, Domingos & Gide, Ergun (2018); Lu, Yaobin (2011); and Makttoof et al. (2018) as well (Alalwan et al., 2017; Cao, Yu, Liu, Gong, & Adeel, 2018; Lu et al., 2011; Makttoof, Khalid, & Abdullah, 2020; Mondego & Gide, 2018).

Conclusion

Social Influence; Facilitating Conditions; Performance Expectancy; Effort Expectancy; Perceived Technology Security; and Trust simultaneously had a noteworthy influence toward interest in using this mobile payment application. The outcomes of the research provide valuable recommendations for the administration regarding whereby to utilise mobile payment successfully in the companies. Considering users are affected by both advantages and risks. At the same time, they evaluate the esteem of the versatile service, and the administration ought to produce an exertion to make a response of low prices and alluring advantages. Within expansion, directors ought to record these penances that are mainly seen as impacting clients more than the perceived benefits do. Merchants anticipate customers' power from versatile instalments since they can minimise time in addition to reward funds utilisation. Convenience concerns and enormous expenses, in any case, are decreasing buyer advantages.



The request for the advantages of this modern framework further performs a vital part in improving users' seen esteem about the portable service. In this way, the auxiliary concern of the administration ought to move forward the profits of the mobile service. Directors can endeavour to extend seen value over including specific roles based upon expected sales concerning client criticism. In addition to the handling of development, it is vital to mindfully plan capacities since the portable service operates on small devices. Besides, the directors might strive to advance social image within these persistent elements of current management in sessions of both capacities or plan highlights since numerous modern clients would direct to accept new goods or services to distinguish the companies from the competitors. This outcome also recommends that online setting providers with reliable respect might enhance the mobile augmentation with leveraging at both the retailers and customers' preceding trust in online settings (Petrova & Wang, 2013; N. Wang et al., 2013).

Although inquiries about merchants conduct have broadly recognised the significance of value, ease of utilisation, and other conclusions and delight for predicting the appropriation of innovation in SME setting, there is still a need within the information of how these specific advancements will alter the conventional retail trade patterns and of what degree those might be coordinated into companies toward accomplishing real profit. Finally, we need a new investigation to improved innovations and advancement management for retail as well as the need for the advancement of more profound analysis methods that empowers the different nations to be validated and estimated to create more detail previsions on future user's practices.

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