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Factors Influencing Retail Customer Satisfaction in Mobile Banking Services: A Case Study of Sacombank - Hanoi Branch

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Abstract

This study aims to investigate the factors influencing customer satisfaction in M-banking services in Vietnamese commercial banks, focusing on Sacombank's Hanoi Branch. Based on the SERVQUAL model by Parasuraman *et al*. (1988) and related literature, this study identifies five critical factors that determine customer satisfaction: reliability, responsiveness, tangibility, assurance, and empathy. A survey was conducted with 208 retail customers at Sacombank Hanoi Branch who have used the M-banking services. Structural equation modeling was used to analyze the data, revealing that all five factors positively affect customer satisfaction. Furthermore, the study highlights the diminishing but significant impact of these factors on customer satisfaction. Based on the findings, specific recommendations and strategies are proposed for Sacombank's Hanoi Branch and its head office to enhance customer satisfaction in M-banking services.

Keywords: Structural equation modeling, M-Banking, Customer satisfaction, SERVQUAL

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Introduction

Mobile banking has seen significant growth in recent years, primarily due to its accessibility and ease of use [1, 2]. For this study, mobile banking is defined as "online banking services on smartphones that allow transactions anytime and anywhere via the Sacombank mBanking application". As the popularity of mobile banking rises, understanding the factors that affect customer satisfaction with these services has become increasingly important [3, 4].

Customer satisfaction in the context of mobile banking services has been a focal point in various studies [5-7]. In Vietnam, mobile banking is still relatively new, and some customers remain cautious about using it due to concerns over security, trust, and convenience [8]. Investigating these concerns and identifying the factors that impact satisfaction can help banks improve trust, customer experience, and overall loyalty [9].

In Vietnam, consumers are increasingly becoming familiar with using mobile phones for online services. The State Bank of Vietnam (2022) reported rapid growth in mobile payments, with smartphone transactions rising by 98.3% in volume and 84.3% in value compared to 2021, and QR code payments seeing similar increases. The COVID-19 pandemic further

accelerated the adoption of online services, particularly in mobile banking, making it crucial for banks to understand factors that influence customer satisfaction in this area.

This research focuses on retail customers of Sacombank Hanoi Branch to assess their satisfaction with the bank's M-banking services. Sacombank has faced challenges such as slow growth in new registrations, declining new account openings, and increasing inactive users. Therefore, understanding customer satisfaction is essential for identifying areas of improvement and staying competitive in the market.

While some studies have examined Sacombank's electronic banking services, they have primarily focused on user intentions rather than satisfaction [10-12]. Given the shift in consumer behavior during the pandemic and the rising use of mobile banking services, exploring customer satisfaction in this area is more relevant than ever. Additionally, no previous research has specifically addressed the satisfaction of Sacombank customers at the Hanoi Branch, making this study crucial for providing insights that can drive service improvements, increase customer loyalty, and attract new users.

Literature review

Quality of mobile banking services

A variety of service quality frameworks have been utilized to assess customer satisfaction in mobile banking (M-banking) services. One of the most widely used models is the SERVQUAL model by Parasuraman *et al.* [13], which evaluates customer satisfaction based on five dimensions: tangibles, reliability, responsiveness, assurance, and empathy [5-7]. However, some studies have expanded this model by incorporating additional factors like security and privacy to gauge customer trust [14-16], as well as evaluating aspects such as app design, aesthetics, and ease of use [14-16]. Despite these variations, the foundational SERVQUAL model still serves as the basis for most of these studies. The SERVQUAL model has been validated through numerous studies and remains an effective tool for measuring satisfaction with M-banking services [5-7]. Therefore, this study adopts the SERVQUAL framework to evaluate the quality of M-banking services.

Customer satisfaction

Customer satisfaction is a result of the value customers perceive they gain from their interactions with a service provider [17]. Sathiyavany and Shivany [18] describe satisfaction as the fulfillment of customer expectations and anticipated benefits. It occurs when the experience meets or exceeds the expectations set by the customer. The emotional response that customers experience reflects their evaluation of the service or product they received. In banking, customer satisfaction refers to the contentment customers feel after using a bank’s services, whether through traditional or online platforms [19].

In electronic banking, customer satisfaction is intricately tied to the overall quality of the services offered. By enhancing the overall quality of banking services, banks can increase customer satisfaction and build long-term loyalty [20].

M-banking service quality and its influence on customer satisfaction

This section delves into the primary elements that shape satisfaction with mobile banking services, including reliability, tangibles, assurance, responsiveness, and empathy while investigating their roles in customer satisfaction.

- *Assurance*

Assurance, a critical factor in evaluating M-banking services, has been explored in several studies [5-7]. In Vietnam, Nguyen and Phan [7] highlighted that assurance is built not only on the staff's ability to assist and advise customers but also on the mobile banking app’s capability to deliver swift and precise service. Multiple studies report a strong positive correlation between assurance and customer satisfaction in M-banking services [5-7]. Other research focuses on security and privacy, finding these elements also significantly affect customer satisfaction [14, 16, 21].

- *Responsiveness*

Responsiveness, which signifies the availability of 24/7 support, prompt responses, and efficient problem resolution, is another key quality measure for M-banking services [22, 23]. This dimension has been addressed in several studies [5-7, 21], showing a consistent positive link with customer satisfaction. Enhancing both online and offline communication channels can improve fairness in interactions and protect customers' interests [24]. Nevertheless, Ronny’s [21] research did not find a strong connection between responsiveness and M-banking satisfaction.

- *Empathy*

Empathy plays a crucial role in determining M-banking service quality. It is characterized by the ability to personalize services, making customers feel valued and understood [5, 6]. According to Nguyen and Phan [7], empathy in M-banking is expressed by how well the service meets both the financial and emotional needs of customers. The positive relationship

between empathy and customer satisfaction has been consistent across studies [5-7, 23]. In Vietnam, the human-centered qualities of empathy, assurance, and responsiveness significantly influence M-banking satisfaction.

- *Reliability*

Reliability refers to the consistency and accuracy of M-banking services, ensuring services are delivered as promised and without errors [5-7, 15, 21]. While some researchers use "fulfillment" to describe similar features, including transaction consistency and timeliness, the importance of reliability for customer satisfaction remains clear. Studies consistently report that reliability is a crucial determinant of customer satisfaction with M-banking services [5, 15]. More recent studies [6, 16] have affirmed its significant impact.

- *Tangibility*

Tangibility refers to the physical attributes of the mobile banking interface, such as design, usability, and visual appeal. Nguyen and Phan [7] noted that factors like the app's interface design, user-friendliness, and ease of navigation are central to the tangible quality of mobile banking. Numerous studies show that tangibility has a positive effect on customer satisfaction [5, 7, 15]. However, some studies focus on specific aspects like usability and app design [14, 16, 21], which collectively impact the customer experience. Despite this, Nguyen and Phan [7] found that tangibility had a limited influence on satisfaction in Vietnam, suggesting the need for further investigation in light of rapid technological changes.

Materials and Methods

Conceptual framework and hypotheses

This study utilizes the SERVQUAL model, proposed by Parasuraman *et al*. [13], to explore the relationship between M-banking service quality and customer satisfaction. The model's five key dimensions—tangibility, reliability, assurance, responsiveness, and empathy—are applied to assess customer satisfaction. The research model, as shown in **Figure 1**, is based on five specific hypotheses.

H1: Customer satisfaction with M-banking services is positively impacted by the level of assurance provided.
H2: The responsiveness of M-banking services is expected to have a positive influence on customer satisfaction.
H3: Higher empathy in service delivery will lead to greater customer satisfaction with M-banking.
H4: The reliability of M-banking services is positively correlated with customer satisfaction.
H5: Tangible aspects of the M-banking experience will positively affect customer satisfaction.

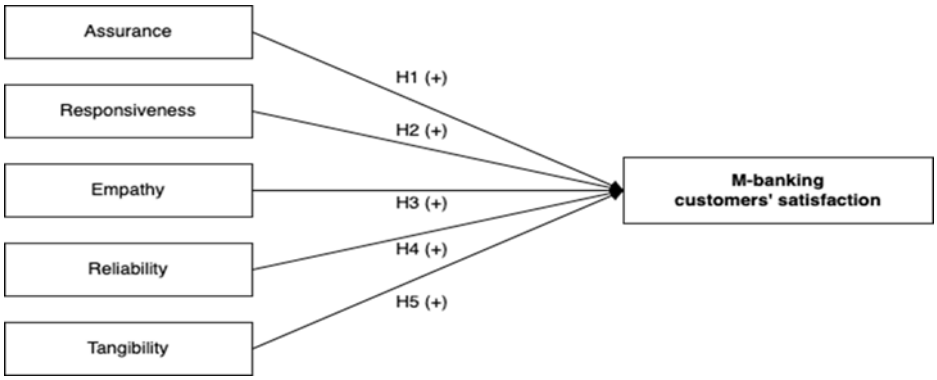

Figure 1. Research model and hypotheses

Data collection

Primary data

The data for this research was gathered using an online survey designed through Google Forms. The questionnaire consisted of two parts. The first part focused on demographic details such as gender, age, education, and monthly income, as well as information on the banking applications and mobile banking services utilized. The second part examined various factors that influence customer satisfaction related to the quality of mobile banking services.

Survey sample

Once the responses were collected, any inconsistent or illogical answers were excluded from the analysis. Specifically, responses with uniform answers across all questions were removed. A total of 243 responses were received, from which 35

were discarded due to inconsistency, resulting in 208 valid responses. The final sample size of 208 met the minimum requirement of 200 valid responses for the analysis.

Data analysis

Descriptive Statistics of Respondents' Characteristics

Table 1. Respondents' profile

Category	Group	Frequency	Ratio (%)
Gender	Male	73	35.10
	Female	134	64.42
	Other	1	0.48
Age (years)	< 25	53	25.48
	25-35	98	47.12
	36-45	41	19.71
	46-55	9	4.33
	> 55	7	3.37
Education level	High school	3	1.44
	Bachelor degree	179	86.06
	Master degree	16	7.69
	Other	10	4.81
Monthly income (VND)	< 10 M	55	26.44
	10 M - < 25 M	131	62.98
	25 M - < 40 M	19	9.13
	40 M - < 55 M	2	0.96
	> 55 M	1	0.48
Number of banking apps used	1 app	37	17.79
	2 apps	107	51.44
	3 apps	43	20.67
	4 apps	15	7.21
	From 5 apps	6	2.88
Services used on the Sacombank M-banking app	Money transfer	204	98.08
	Account management	156	75.00
	Online payment	160	76.92
	Online savings	127	61.06
	Online loan services	40	19.23
	Card services	138	66.35
	Shopping	46	22.12
	Buy foreign currency	3	1.44

Table 1 presents the demographic details of the respondents, covering aspects such as gender, age, educational background, and monthly income. Among the survey participants, 134 were female (64%) and 73 were male (35%). The age group of 25 to 35 years constitutes the largest segment, with over 47% of users falling within this range. The majority of respondents are highly educated, with nearly 86% holding a bachelor's degree. Regarding income, 63% of participants reported a monthly income between 10 million and 25 million VND. A smaller proportion, approximately 10% (19 respondents), earn between 25 million and 40 million VND monthly.

In addition to these demographic factors, the survey also inquired about the number of banking apps used and the types of mobile banking services accessed. Nearly all participants (98%) indicated using M-banking applications for money transfers. Other features, such as online shopping, loan services, and foreign currency exchange, were less commonly used. Moreover, about half of the respondents use mobile banking apps from two different banks, with one being Sacombank and the other from a different provider. Interestingly, a small portion of participants, 37 responses (18%), reported complete loyalty to Sacombank, using only its mobile banking app.

Reliability analysis

Table 2. Cronbach's alpha results

Construct	Item	Corrected item-total correlation	Cronbach's alpha
AS	AS1	0.692	0.919

	AS2	0.866	
	AS3	0.849	
	AS4	0.853	
EM	EM1	0.692	0.899
	EM2	0.768	
	EM3	0.780	
	EM4	0.764	
	EM5	0.750	
REL	REL1	0.735	0.857
	REL2	0.689	
	REL3	0.775	
RES	RES1	0.466	0.794
	RES2	0.737	
	RES3	0.626	
	RES4	0.606	
TAN	TAN1	0.777	0.901
	TAN2	0.715	
	TAN3	0.837	
	TAN4	0.787	
SAT	SAT1	0.778	0.898
	SAT2	0.845	
	SAT3	0.780	

In this study, 208 completed questionnaires were analyzed using SPSS 26.0. To assess the reliability of the measurement model, Cronbach's alpha and Corrected Item-Total correlation were used. As shown in **Table 2**, Cronbach's alpha values for the six variables ranged from 0.794 to 0.919, all exceeding the minimum threshold of 0.7 [25]. The corrected item-total correlations for each of the 22 observed variables were greater than 0.3, meeting the criteria outlined by Nunnally [26]. Consequently, all six constructs satisfied the requirements for exploratory factor analysis (EFA).

Exploratory factor analysis (EFA)

EFA was separately conducted for the independent and dependent variables. Before performing the analysis, three key conditions were checked. First, the Kaiser-Meyer-Olkin (KMO) measure should fall between 0.5 and 1, as per Kaiser [27], and Bartlett's Test of Sphericity had to be significant, indicating that the variables were sufficiently correlated. Second, the Total Variance Explained should be at least 50% to confirm the validity of the scale, according to Anderson and Gerbing [28]. Third, each observed variable needed to have a factor loading of 0.5 or higher. These conditions were met for both the independent and dependent variables. Notably, in the pattern matrix **(Table 3)**, some items from assurance and responsiveness were re-grouped, with RES1 being incorporated into the Assurance construct. A total of five primary factor groups were identified.

Table 3. Pattern matrix results

	Factor				
	1	2	3	4	5
AS4	0.960				
AS3	0.900				
AS2	0.868				
AS1	0.698				
RES1	0.557				
EM3		0.858			
EM2		0.808			
EM4		0.788			
EM5		0.758			
EM1		0.711			
TAN3			0.966		
TAN4			0.859		
TAN1			0.790		
TAN2			0.668		

REL3	0.875	
REL1	0.756	
REL2	0.566	
RES3		0.815
RES2		0.780
RES4		0.536

Extraction method: principal axis factoring.
Rotation method: Promax with Kaiser normalization.
A rotation converged in 6 iterations.

Measurement model evaluation

Table 4. Results of measurement model evaluation

		CFA (n = 208)	
Path	**Outer loadings**	**Composite reliability**	**Average variance extracted**
AS1 → AS	0.817	0.936	0.747
AS2 → AS	0.917		
AS3 → AS	0.910		
AS4 → AS	0.908		
RES1 → AS	0.759		
EM1 → EM	0.795	0.926	0.713
EM2 → EM	0.857		
EM3 → EM	0.867		
EM4 → EM	0.857		
EM5 → EM	0.846		
REL1 → REL	0.889	0.913	0.779
REL2 → REL	0.852		
REL3 → REL	0.906		
RES1 → RES	0.894	0.886	0.723
RES2 → RES	0.811		
RES3 → RES	0.843		
TAN1 → TAN	0.888	0.93	0.769
TAN2 → TAN	0.854		
TAN3 → TAN	0.903		
TAN4 → TAN	0.862		
SAT1 → SAT	0.906	0.937	0.832
SAT2 → SAT	0.935		
SAT3→ SAT	0.896		

- *Internal consistency reliability*

Composite reliability (CR), which serves a similar role to Cronbach's alpha in the PLS-SEM method, was utilized to assess internal consistency. Nunnally and Bernstein [29] suggest that a CR value above 0.70 is considered acceptable. As indicated in **Table 4**, the CR values for all 5 constructs ranged from 0.886 to 0.937, confirming that the measurements demonstrate reliability.

- *Convergent validity*

Convergent validity was assessed using two measures: the average variance extracted (AVE) and outer loadings. The outer loadings should ideally be above 0.70, according to Hulland [30]. As seen in **Table 3**, all outer loadings of the measurement items exceeded this threshold. Additionally, the AVE was calculated to assess the common variance for each construct, with a recommended threshold of at least 0.50. All five constructs had AVE values ranging from 0.713 to 0.832, which meets the criteria set by Fornell and Larcker [31].

- *Discriminant validity*

To evaluate discriminant validity, the Fornell-Larcker criterion was applied, which asserts that the square root of the AVE for each latent variable must be greater than its maximum correlation with any other variable. The results in **Table 5** confirm that all constructs— assurance, reliability, empathy, tangibility, and satisfaction—satisfied this criterion, indicating strong

discriminant validity. This confirms that all six constructs exhibit high internal reliability and sufficient validity for the structural model evaluation.

Table 5. Fornell-Larker criterion for discriminant validity

	CR	AVE	AS	EM	REL	RES	SAT	TAN
AS	0.936	0.747	**0.864**					
EM	0.926	0.713	0.461	**0.845**				
REL	0.913	0.779	0.561	0.553	**0.882**			
RES	0.886	0.723	0.568	0.440	0.572	**0.850**		
SAT	0.937	0.832	0.669	0.607	0.724	0.700	**0.912**	
TAN	0.93	0.769	0.358	0.532	0.476	0.480	0.592	**0.877**

Note 1: AVE = Average variance extracted. The bold diagonal elements are calculated by the square root of the AVEs and non-diagonal elements are latent variable correlations.
Note 2: AS = Assurance, EM = Empathy, REL = Reliability, SAT = Satisfaction, TAN = Tangibility.

Evaluation of the structural model

- *Model fit assessment*

In this research, several model fit criteria were utilized to assess the model's appropriateness, including the standardized root mean square residual (SRMR), squared Euclidean distance (d-ULS), squared geodesic distance (d-G), normed fit index (NFI), and root mean square residual covariance matrix (RMS_theta). The results indicated that the fit indices were all within the acceptable range (SRMR = 0.064, d-ULS = 1.121, d-G = 0.647, NFI = 0.803). Specifically, the SRMR value was below the threshold of 0.5, as recommended by Byrne [32]. According to Hu and Bentler (1998), an NFI greater than 0.8 is considered satisfactory for factor models, and this study's results met that standard. These fit indices aligned with the criteria proposed by Henseler *et al*. [33], confirming the model's good fit to the data.

- *Collinearity assessment*

To evaluate the presence of multicollinearity within the structural model, tolerance and variance inflation factor (VIF) values were assessed for each predictor construct. According to Hair *et al.* [34], collinearity is minimal when VIF values are under 5. The VIF values for the predictor constructs ranged from 1.589 to 1.961, indicating that no significant collinearity was present in the model.

- *Path relationship evaluation*

Table 6. Evaluation of path relationship

Paths	Path coefficients	T-stats	P-stats	Hypothesis testing
AS → SAT	0.237	3.297	0.001	Accepted
EM → SAT	0.132	2.549	0.011	Accepted
REL → SAT	0.286	3.929	0.000	Accepted
RES → SAT	0.259	4.776	0.000	Accepted
TAN → SAT	0.176	3.878	0.000	Accepted

The research utilized the PLS-SEM "bootstrapping" technique with 208 samples and one thousand resamples to calculate t-values and p-values. The outcomes, shown in **Table 6**, indicate that all five hypotheses were supported. At the 1% significance level, assurance, reliability, responsiveness, and tangibility were found to positively influence satisfaction. At the 5% significance level, empathy also had a positive effect on satisfaction. Among the significant predictors, reliability showed the strongest impact on satisfaction (β REL → SAT = 0.286, P = 0.000), followed by responsiveness (β RES → SAT = 0.259, P = 0.000), assurance (β AS → SAT = 0.237, P = 0.001), tangibility (β TAN → SAT = 0.176, P = 0.000), and empathy (β EM → SAT = 0.132, P = 0.011). Additionally, the modeled factors accounted for 72.5% of the variance in satisfaction, and according to Henseler *et al.* [35], this R2 value suggests a moderate predictive accuracy for satisfaction.

Results and Discussion

The findings indicate that customer satisfaction with M-Banking services is significantly influenced by reliability, responsiveness, assurance, tangibility, and empathy, all of which align with previous research. The study confirms the support for all five hypotheses.

Reliability emerges as the most crucial factor driving satisfaction among M-Banking users at Sacombank Hanoi Branch. It refers to the bank's ability to deliver services consistently, as promised, without errors, and on time. This reinforces the importance of the bank meeting customer expectations through dependable service outcomes. Key aspects include providing accurate information (such as details about fees, services, and promotions related to M-Banking), offering quick and effective responses to inquiries and complaints, ensuring confidentiality, maintaining security, and delivering fundamental banking services. Additionally, Sacombank's brand image plays a role in reinforcing the perceived reliability of its services, which further enhances customer satisfaction.

The second most significant factor affecting customer satisfaction is responsiveness. This quality encompasses both the app's features and the support staff's availability and efficiency. For the app, responsiveness is determined by transaction speed and 24/7 availability, which are vital to customer satisfaction. Regarding support staff, customers expect prompt, professional resolution of complaints at all hours. Given the intangible nature of M-banking services, customers expect clear, consistent updates on their transactions. By improving responsiveness, Sacombank can enhance user satisfaction with its M-banking services.

Assurance, referring to the level of security and privacy offered, also significantly impacts customer satisfaction. Users feel more confident and satisfied when their sensitive data—such as login credentials, accounts, and card information—is protected from unauthorized access, cyberattacks, or fraud. Banks must offer robust data security features, such as encryption, client authentication, and continuous monitoring of suspicious activities. Maintaining and enhancing customer perceptions of security ensures a safer experience, which directly correlates with higher satisfaction levels.

Tangibility, which includes aspects such as the app's interface, design, and ease of use, positively influences customer satisfaction. However, current users of Sacombank's M-Banking services have expressed dissatisfaction with these features. To boost satisfaction, Sacombank must focus on improving the user interface to make the app more intuitive and visually appealing. This need for improvement aligns with Sacombank's strategic digital transformation goals, as outlined during the Annual General Meeting of Shareholders in April 2023, which emphasized the importance of customer convenience through four core pillars: technology infrastructure, comprehensive digital solutions, digital products and services, and fostering a digital mindset among staff.

Finally, empathy plays a significant role in enhancing customer satisfaction. The findings are consistent with previous studies in Vietnam, where risk-averse customers continue to seek personalized service, consultation, and attentive care from bank staff despite the greater autonomy M-Banking offers. The intangible nature of mobile banking services still requires support from human factors, especially from frontline and technical staff. As such, when customers experience greater empathy for Sacombank's services, their satisfaction levels increase.

Based on the analysis, the study provides several actionable recommendations for enhancing customer satisfaction with Sacombank's M-Banking services, backed by insights gathered from in-depth interviews with experts at the Sacombank Hanoi Branch. The branch is advised to focus on two main strategies: (1) Strengthening security and building trust through clear communication and continuous ethics training for employees, and (2) Enhancing empathy and responsiveness by offering more proactive and tailored consultation services to customers.

On a broader scale, Sacombank's headquarters should focus on: (1) Continuously refining the M-Banking app, (2) Reinforcing its brand image, and (3) Increasing investment in marketing and promotional efforts. Furthermore, the State Bank of Vietnam should collaborate with the Ministry of Public Security to take essential steps, such as (1) Implementing measures to identify and remove inactive accounts, and (2) Encouraging the use of population data, identification, and electronic authentication to support the country's ongoing digital transformation.

Conclusion

This research has successfully met its objectives through the analysis of both primary and secondary data. Utilizing the SERVQUAL model [13] as its theoretical foundation, alongside other pertinent studies, the research identifies five key factors influencing customer satisfaction in M-banking: reliability, assurance, tangibility, responsiveness, and empathy. A survey was conducted with 208 retail customers from the Sacombank Hanoi Branch who had experience using the bank's M-banking services. The study, using Structural Equation Modeling, concludes that all five factors positively impact customer satisfaction, with their effects decreasing in magnitude. It is found that achieving customer satisfaction through mobile banking may be more challenging than traditional banking due to the integration of financial services with technological platforms. To mitigate uncertainty and build trust among consumers, Sacombank Hanoi Branch should collaborate with its headquarters and follow the guidance of the State Bank of Vietnam in implementing the proposed solutions.

Limitations and directions for future research

This study is primarily focused on how various service quality factors affect customer satisfaction with mobile banking services. Future research should consider additional geographic and demographic factors that may influence satisfaction in M-banking.

Additionally, the sampling approach in this study may introduce biases, as the data were collected solely from Sacombank Hanoi branch clients using convenience sampling. Future studies could expand by incorporating data from other Sacombank branches within Hanoi and beyond, which would help to strengthen the generalizability of the results. Expanding the research to include more variables or a larger, more representative sample could further enhance the robustness of the findings.

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