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Research Article

The Impact of Quality Factors on Mobile Service Quality: The Case of a Telecommunications Company from an Emerging Country

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ABSTRACT

The mobile telecommunications market in Vietnam demonstrates that development has reached saturation, especially the impact of technological developments and related policy changes. Moreover, mobile telecommunication companies, in general, seeking sustainable growth need to develop policies that enhance customer loyalty by thoroughly exploring MTSQ through the perceived value of their customers (Lu, 2024). This article investigates the impact of quality factors on the quality of mobile telecommunications services (MTSQ) at Viettel Telecommunications Corporation (Viettel Telecom). The study employs linear structural model analysis (PLS - SEM) using the partial least squares approach to analyze data obtained from 234 Viettel Telecom mobile telecommunications service consumers. The research results have contributed to providing a comprehensive, comprehensive and highly generalized theoretical framework on the quality of mobile telecommunications services. At the same time, providing important implications in policies to improve the quality of mobile telecommunications services at Viettel Telecom in maintaining its position as the number 1 telecommunications service provider in Vietnam.

Keywords: Service Quality, Mobile Telecommunications, Viettel Telecom, Satisfaction, Perceived Value.
JEL codes: A10, M2, M20, M21.

INTRODUCTION

Adding on the booming digitalization industry since 2019, the Telecommunications Department has issued policies aimed at promoting the transition from traditional telecommunications services to broadband, data services, and integrated information technology platforms deployed on the digital infrastructure in the period of 2024 - 2030 (Nguyen Van et al., 2024). It leads to the fact that mobile telecommunications services are the relatively saturated field. However, there are still possibilities if mobile telecommunications service providers consider to take advantage of the shifting opportunity towards digital content and services based on new technology platforms. Additionally, MTSQ in Vietnam according to the Ministry of Information and Communications in 2022 issued national technical regulations on phone service quality on terrestrial mobile telecommunications networks. The main content of the circular stipulates that MTSQ is based on indicators showing the level of customer satisfaction with telecommunications services provided by telecommunications businesses.

Viettel Telecom, a Vietnamese top conglomerate in Telecommunications - Information Technology industry, plays a leading role in the economy, with revenue, profits, and state budget contributions that are among the highest in Vietnam. In addition, Viettel Telecom commits to comply with the MTSQ policy, resulting in its noticeable attention to quality improvement policies as well as the goal of best acquiring customer satisfaction and long-term engagement with the business.

Previously, there have been various domestic and foreign studies on customer satisfaction, behavioral intentions, loyalty and engagement (Nguyen Van et al., 2024; Al Ajaleen & Saadon, 2023; Panama et al., 2023; Al-Debei et al., 2022). However, those researches only focused on discovering common elements affecting customer behavior, intentions, and decisions such as researched by Nguyen Van et al. (2024) and customer engagement, satisfaction, and loyalty to mobile telecommunications service providers as researched (Lu, 2024; Al Ajaleen & Saadon, 2023; Panama et al., 2023; Al-Debei et al., 2022). Also, previous studies have not explored/examined the relationship between quality factors and MTSQ, particularly, to research MTSQ in depth to further explore the internal factors composing MTSQ at Viettel Telecom. Additionally, researches regarding MTSQ's objectives, visions, and components in the conceptual framework still have available gaps for future exploitation and fulfillment. On the other hand, previous studies have primarily focused on affirming the theoretical framework they adopted and inherited, without clarifying the distinction between the two concepts of "Customer Satisfaction" and "Mobile Telecommunication Service Quality" (meaning that earlier researchers evaluated service quality using the concept of "Customer

Satisfaction"). The objective is to propose the most comprehensive research framework for mobile telecommunication service quality and to elucidate the differences as well as the relationship between customer satisfaction and service quality.

Therefore, the research questions raised need answers such as:

- What theoretical basis can be applied to explore the relationship between quality factors for QTSQ of a telecommunications company from an emerging country?
- How can the influence of different factors on quality of life be determined and measured?
- Are the research hypotheses that the author sets out in the context of Telecommunication Telecommunications acceptable or not?
- What management implications can help Viettel Telecom improve QTSQ?

To satisfactorily answer the questions raised, the authors asserts that researching MTSQ at Viettel Telecom holds significant importance. The study's findings contribute to a comprehensive theoretical framework on MTSQ and can assist Viettel Telecom's managers in allocating resources effectively to enhance MTSQ and strengthen sustainable customer engagement. Simultaneously, to clarify the gaps identified by the authors, the structure of the main content will include: an overview of the theoretical foundations related to the research issue, research methodology, presentation and discussion of research findings, managerial implications, and the limitations that arise from the research results.

2. LITERATURE REVIEW

2.1. Mobile Telecommunications Service Quality (MTSQ)

According to Lai et al. (2009), MTSQ is defined as the quality of communication over long distances using telephone or wireless technology, involved the use of microelectronic technologies and (personal) computer technology for transmitting, receiving, and switching audio, data, and images through transmission media. Nguyen Van et al. (2024) believed that mobile telecommunications services bring satisfying value to customers and users through their perceived quality and contentment, which is similar to Lu (2024) arguments when studying mobile telecommunications of Viettel Telecom in the Vietnamese context. Besides, Al-Debei et al. (2022) suggested that supplier selection criteria include price, quality of service provided, compliance in delivery, product/service quality, technology, and management ability. Thus, it can be seen that mobile telecommunications services are a type of high-tech service and MTSQ largely depends on customers' perceptions and satisfaction assessment.

2.2. The impact of quality factors on the quality of mobile telecommunications services at Viettel Telecom

According to Dabholkar et al. (2000), service quality through cultomers' analysis of antecedent and intermediate factors affects their satisfaction level, meaning that service quality is determined by customers' perceived value and satisfaction towards service characteristics, including reliability, consideration, comfort and service characteristics. Additionally, Parasuraman et al. (1988), Gronroos (1984) and Sweeney et al. (1997) also argued that the service quality model must include two main elements: technical quality and service quality.

Previous researchers also stated the general asumption that different research contexts may lead to different research fields. To illustrate, Panama et al. (2023), who investigated the Nigerian market's issue of service quality in the mobile telecommunications industry, argued that price quality and customer service quality have a significant impact on customer satisfaction, emphasizing that businesses require efficient pricing and customer service policies to enhance self-competitiveness. Also, according to Al-Debei et al. (2022), a model to improve Arabic customer loyalty includes customer service, service content, mobile network efficiencies, and price structure. However, technical quality and system quality are two core factors creating MTSQ when researching Viettel Telecom context. Thus, this study notices four siginificant quality factors - technical quality (network quality), system quality, service quality and price (price structure) having a critical relationship with MTSQ.

Technical Quality (TEQ)

Technical quality refers to the ability of telecommunications networks and related services in meeting customer connection/communication requirements - connection quality is expressed from the end user's perspective (Pavlos & Vrechopoulos, 2008). Thaichon et al. (2014) believed that technical quality includes connection speed, connection bandwidth, stability and coverage, audio and image quality, guaranteed connection security and privacy without interruptions. That technical quality demonstrates the capacity of the mobile telecommunications service provider's infrastructure, technology, and network coverage (Panama et al., 2023).

Importantly, following the model of Parasuraman et al. (1988) and the quality model of Gronroos (1984), technical quality is one of the factors that constitute service quality and should be included when researching service quality owing to its frequent appearance in previous studies in evaluating MTSQ. Panama et al. (2023) proposed a model

considering network quality as a technical factor to study customer satisfaction and engagement in the mobile telecommunications services field. Hence, the following hypotheses are proposed:

Hypothesis H1: Technical quality has a positive influence on customer perceived value.

Hypothesis H2: Technical quality has a positive effect on customer satisfaction.

System Quality (SYQ)

Solid system quality indicates success in terms of convenient communication between the supplier's system and the customer, and thus leading to increased user satisfaction by timeliness, reliability, and availability (Lee & Kim, 2007). In research on MTSQ, system quality is one of the measures of service quality, expressed through characteristics as ease of use, friendly interface, error-free performance, and acceptable interaction/communication time between customers and suppliers (Ulbrich et al., 2011). In addition, Lu (2024) argued that system quality has an impact on perceived value and customer satisfaction, which is similar to Thaichon et al. (2014)'s concept. Thus, there are hypotheses:

Hypothesis H3: System quality has a positive effect on customer perceived value.

Hypothesis H4: System quality has a positive effect on customer satisfaction.

Service quality (SEQ)

According to Sweeney et al. (1997), service quality is the utility quality for a service, and users perceive it through its external form. This study inherits this characteristic for the mobile telecommunications industry - a service industry which has similarities with tangible products according to Parasuraman et al. (1988)'s definition of service capacity. Accordingly, this paper proposes to consider that service quality in the mobile telecommunications industry has a similar role to service capacity according to Parasuraman et al. (1988)'s 5-factor model and Gronroos (1984)'s model.

Thus, service quality is the ability of a telecommunications service provider to meet and exceed customer expectations (Thaichon et al., 2014; Panama et al., 2023; Nguyen Van et al., 2024). This is an important aspect of providing mobile services including the following elements: employee feedback, direct/indirect customer support, and complaint and inquiries resolution. Service quality is considered exceptional when it possibly handles customer complaints promptly and efficiently (Dabholkar et al., 2000). Therefore, the study proposes the following hypotheses:

Hypothesis H5: Service quality has a positive influence on customer perceived value.

Hypothesis H6: Service quality has a positive effect on customer satisfaction.

Price quality (PRQ)

Price quality is an important factor for consumer satisfaction as it is the criteria used for evaluating the true value of a product/service (Cronin et al., 2000; Lu, 2024), and thus, it is challenging to estimate effective pricing strategy (Martin et al., 2007). Understanding customers' cognitive potential and characteristics can guide more accurate pricing decisions for businesses.

Similarly, in the context of mobile network service, Gerpott et al. (2001) and Santouridis & Trivellas (2010) showed that price structure has a positive meaning associated with customer perception and satisfaction. Therefore, the following hypotheses are proposed:

Hypothesis H7: Price quality has a positive influence on customer perceived value.

Hypothesis H8: Price quality has a positive effect on customer satisfaction.

2.3. The relationship between perceived value (PEV), satisfaction (SAT) and mobile telecommunications service quality (MTSQ) at Viettel Telecom

Multidirectional relationships between perceived value, customer satisfaction, and intention to use and reuse has been shown extensively in traditional marketing research. Also, consumer perceived value refers to the consumer's assessment of the perceived quality ratio associated with a product/service (Zeithaml, 1988), thus, perceived value is correlated in the same direction with customer satisfaction (Nguyen Van et al., 2024; Lu, 2024).
Besides, Kashyap & Bojanic (2000) argued that all definitions of perceived value refer to several trade-off forms between what customers give (price) and receive (utility, quality, benefit). Thus, there is a mutually positive relationship between perceived value, customer satisfaction, and service quality, resulting in following hypotheses:
Hypothesis H9: Customer perceived value has a positive influence on customer satisfaction.

Hypothesis H10: Customer perceived value has a positive influence on MTSQ at Viettel Telecom.

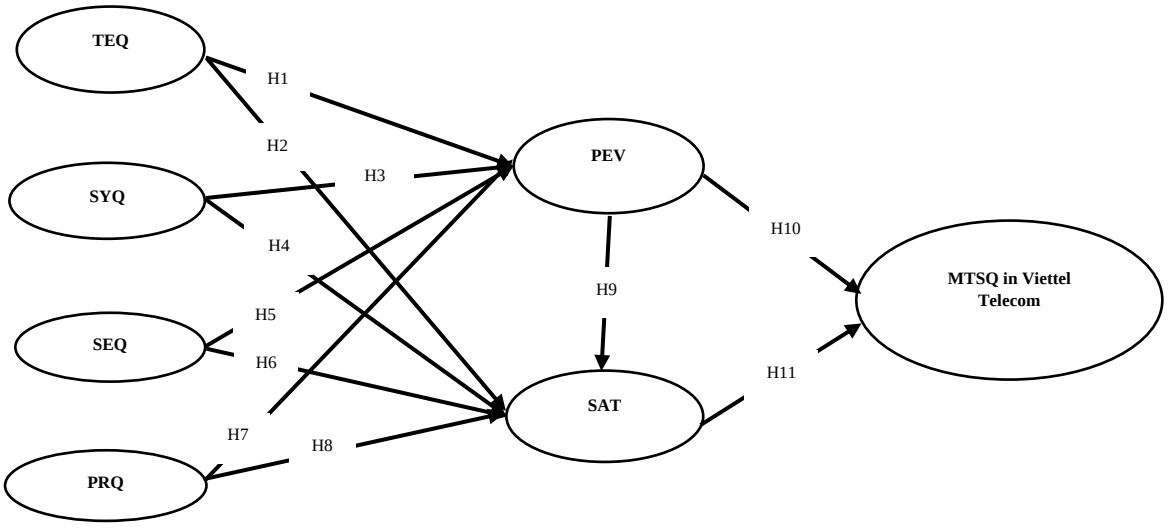
Consumer satisfaction is determined by one of two perspectives when performing purchasing behavior, which are transactional and cumulative perspectives. Previous studies suggested that there is a positive relationship between

satisfaction and service quality that customers receive when using a supplier's services (Kashyap & Bojanic, 2000). Zhou (2013) and Nguyen Van et al. (2024) defined satisfaction as a consumer's overall feelings/emotions developed while interacting with a service provider. That satisfaction level will increase customers' perceived service quality when using mobile telecommunication services (Lu, 2024; Gerpott et al., 2001; Al Ajaleen & Saadon, 2023). Hence, the following hypothesis is formed:

Hypothesis H11: Satisfaction has a positive influence on MTSQ at Viettel Telecom.

Based on theoretical models of service quality and previous MTSQ researches, the research model is synthesized and proposed as follows:

Figure 1: Proposed research model



Source: Compiled and proposed by the authors

3. RESEARCH METHODOLOGY

The authors employs a quantitative research method by conducting a survey targeting customers who have used mobile telecommunication services at Viettel Telecom to provide convincing answers to the research questions.

3.1 Measurement scale and questionnaire design

The research model including 7 concepts and 11 hypotheses is inherited from previous studies to provide a measurement scale for the current conceptual structures. The questions are measured on a 5-point Likert scale with 1- Completely disagree, 3- Neutral and 5 - Completely agree, which is specifically derived from the scale of DeLone & McLean (2003); Kim et al. (2004); Pavlos & Vrechopoulos (2008); Wang (2008).

3.2 Research sample

The authors uses the PLS SEM estimation algorithm - an iterative sequence of the least squares method (Wold & Bertholet, 1982). Regarding sample size in PLS SEM analysis, there is no standard for minimum measure. However, according to Hoelter (1983), the higher the sample size, the more accurate the estimate is; and with a sample size of over 200, the requirement is met. Additionally, according to Hair et al. (2016), if a study employs the Maximum Likelihood estimation method and the model includes m measurement scales with Pj being the number of observed variables for the jth construct, the minimum sample size is determined as follows: N = $\sum_{j=1}^{m}$ **kPj**. The research model proposed by the authors includes 23 measurement variables for the research concepts. Therefore, according to Hair et al. (2006), the minimum sample size should be N = 23 * 10 = 230. Consequently, the authors conducted a survey of at least 230 respondents. To ensure the reliability of the research scales, the authors surveyed 234 respondents.

Sampling method: The authors applies non-probabilistic sampling method using stratified technique to ensure the representativeness of the research sample from provinces and cities where Viettel Telecom operates. The opinion survey was broadcast live, combined with sending via email and applications as Facebook and Zalo. With a total of 300 questionnaires distributed, 250 were returned, and 234 valid responses were included in the analysis, achieving a response rate of 94%.

Scope of survey: The scope focuses mainly on current customers living in all 63 Vietnamese provinces and cities using Viettel Telecom's services.

According to Hair et al. (2017), steps to test the reliability and validity of the construct include testing internal

consistency (outer loading coefficient, Cronbach's Alpha, CR), convergent validity (AVE coefficient), and discriminant value (Fornell – Larcker criteria, HTMT coefficient), subsequently analyzing the linear structural model SEM. The standards of Cronbach Alpha, CR, and AVE coefficients in assessing reliability, validity, and discriminant value in PLS SEM are summarized in Table 1 as follows:

Table 1. Standards of coefficients

No	Name of the evaluation index	Symbol	Reference value	Source
1	Scale reliability (Cronbach's Alpha)	CA	- CA ≥ 0.80 scale has qualified reliability. - CA ≥ 0.70 scale has acceptable reliability. - CA ≥ 0.60 scale has acceptable reliability for research with exploratory purposes.	- Hair et al. (2017) - Hair et al. (2016)
		Outer loading	- Outer loading of the scale is all ≥ 0.7	
2	Composite reliability of the scale	CR	- CR ≥ 0.8 is considered qualified for validation studies	- Hair et al. (2017)
3	Evaluate the convergent validity of the scale	AVE	- AVE > 0.5.	- Hair et al. (2017)
4	Evaluate discriminant value	AVE	The square root of AVE should be higher than the variance of any other latent variable.	- Hair et al. (2017) - Hair et al. (2016)

Source: Authors's Synthesis

4. RESEARCH RESULTS

The analysis results and structural equation model testing are presented by the authors through the following criteria:

4.1 Validating the measurement model

The measurement model of the study was validated by the authors through composite coefficients (as shown in Table 2), presented as follows:

Table 2. Summary of coefficients in the PLS-SEM model

Constructs	Indicators	Factor Loading	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)	VIF
Technical quality (TEQ)	TEQ1	0.855	0.886	0.921	0.746	2.452
	TEQ2	0.879				2.785
	TEQ3	0.848				2.113
	TEQ4	0.872				2.425

System quality (SYQ)	SYQ1	0.908	0.906	0.941	0.842	2.819
	SYQ2	0.918				2.871
	SYQ3	0.927				3.244
Service quality (SEQ)	SEQ1	0.881	0.911	0.937	0.790	3.051
	SEQ2	0.897				3.247
	SEQ3	0.914				3.337
	SEQ4	0.862				2.558
Price quality (PRQ)	PRQ1	0.895	0.884	0.928	0.811	2.264
	PRQ2	0.897				2.567
	PRQ3	0.910				2.789
Perceived value (PEV)	PEV1	0.936	0.893	0.933	0.823	3.496
	PEV2	0.899				2.652
	PEV3	0.886				2.429
Satisfaction (SAT)	SAT1	0.914	0.913	0.945	0.852	2.823
	SAT2	0.925				3.341
	SAT3	0.929				3.391
MTSQ in Viettel Telecom (MTSQ)	MTSQ1	0.921	0.904	0.940	0.839	2.924
	MTSQ2	0.911				2.857
	MTSQ3	0.916				2.881

Source: Compiled results from SmartPLS by the authors

Cronbach's Alpha Validation: The analysis in Table 2 shows that all factors achieve reliability with Cronbach's Alpha coefficients greater than 0.7, ranging from 0.884 to 0.911. Most of the factor loadings for each indicator exceed 0.7, with the lowest being 0.848. Therefore, the reliability of the indicators is assured, and the scale reliability of all variables is appropriate.

Composite Reliability (CR): The analysis results show that the Composite Reliability for TEQ = 0.921; SYQ = 0.941; SEQ = 0.937; PRQ = 0.928; PEV = 0.933; SAT = 0.945; and MTSQ = 0.940. Overall, the Composite Reliability for each construct is greater than 0.8, indicating that the scale has good internal consistency.

Convergent Validity: The results show that the Average Variance Extracted (AVE) for all factors exceeds 0.5, ranging from 0.746 to 0.852, meeting the criteria. According to Hair et al. (2017), a scale achieves convergent validity if the AVE is greater than 0.5, meaning that the factors explain at least half of the variance of their respective indicators. An AVE less than 0.5 indicates that the error variance exceeds the explained variance. Thus, each construct demonstrates good convergent validity.

Discriminant Validity: For a scale to achieve discriminant validity, the square root of the AVE for any latent variable should be higher than the variance of any other latent variable. In SmartPLS, the Fornell & Larcker Criterion (1981) shows the square root of the AVE on the diagonal and the correlations between variables below it. The results in Table 3 indicate that the constructs' discriminant validity is achieved, as the square roots of the AVEs (the bold diagonals) are higher than the off-diagonal correlations. In addition, the research was estimated by using the Heterotrait-Monotrait Ratio (HTMT) method. The results indicate that the HTMT indices for all pairs of first-order factor variables are below 0.9, satisfying the standard condition (Hair et al., 2016) (Table 4).
From the analysis results, the authors concludes that the scale used in the research model have achieved good reliability and validity.

Table 3. Correlation matrix according to the Fornell-Larcker Criterion

	MTSQ	PRQ	SYQ	TEQ	SEQ	PEV	SAT
MTSQ	**0.916**						

PRQ	0.693	**0.900**					
SYQ	0.685	0.639	**0.918**				
TEQ	0.669	0.656	0.730	**0.864**			
SEQ	0.660	0.688	0.735	0.699	**0.889**		
PEV	0.730	0.768	0.735	0.703	0.712	**0.907**	
SAT	0.820	0.791	0.757	0.778	0.743	0.828	**0.923**

Source: Analysis results

Table 4. Discriminant validity according to the Heterotrait-Monotrait Ratio

	MTSQ	PRQ	SYQ	TEQ	SEQ	PEV	SAT
MTSQ							
PRQ	0.772						
SYQ	0.754	0.708					
TEQ	0.746	0.737	0.811				
SEQ	0.724	0.762	0.808	0.776			
PEV	0.811	0.862	0.816	0.789	0.787		
SAT	0.801	0.878	0.831	0.862	0.811	0.816	

Source: Analysis results

4.2 Structural Model Testing

Multicollinearity Test: According to Hair et al. (2017), multicollinearity may occur if tolerance is < 0.2 or if the variance inflation factor (VIF) > 5. The VIF is the reciprocal of tolerance and contains the same information about multicollinearity. Tolerance is calculated as 1 minus the R^2 of a factor. This means that when the R^2 of a factor is less than 0.8, multicollinearity is not an issue, as it meets the criteria of tolerance less than 0.2 or VIF greater than 5. The study results in Table 3 show that the VIF results are all below 5; the maximum VIF value is 3.496, and the minimum is 2.113, indicating that multicollinearity is not present among the latent variables.

Model Fit Validation: The model fit was tested by using the R^2 value. The analysis results indicate that the adjusted R^2 value for the perceived value model is 0.704, for the satisfaction model is 0.801, and for the MTSQ model at Viettel Telecom is 0.678. These values meet the statistical criteria for model fit, as all adjusted R^2 values are greater than 0.67. Therefore, the model is considered to have strong explanatory power (Höck & Ringle, 2010), as shown in Table 5.

Table 5. R and R^2 Validation

	R Square	R Square Adjusted
MTSQ in Viettel Telecom	0.681	0.678
Perceived value	0.709	0.704
Satisfaction	0.805	0.801

Source: Analysis results

The authors used the Communality index to assess the model's fit to the structural model. According to Hair et al. (2016), the Communality index is equivalent to AVE in the PLS model and should have a value greater than 0.5 for the model to be considered fit. The results in Table 3 show that the structural model demonstrates AVE values greater than 0.5 for all constructs.

Additionally, the authors used Cohen's (1988) effect size index, known as the f^2 coefficient, to categorize the effect sizes into three groups: large effect size with f values greater than 0.4; medium effect size with f values between 0.25 and 0.40; and small effect size with f values less than 0.1, as shown in Table 6.

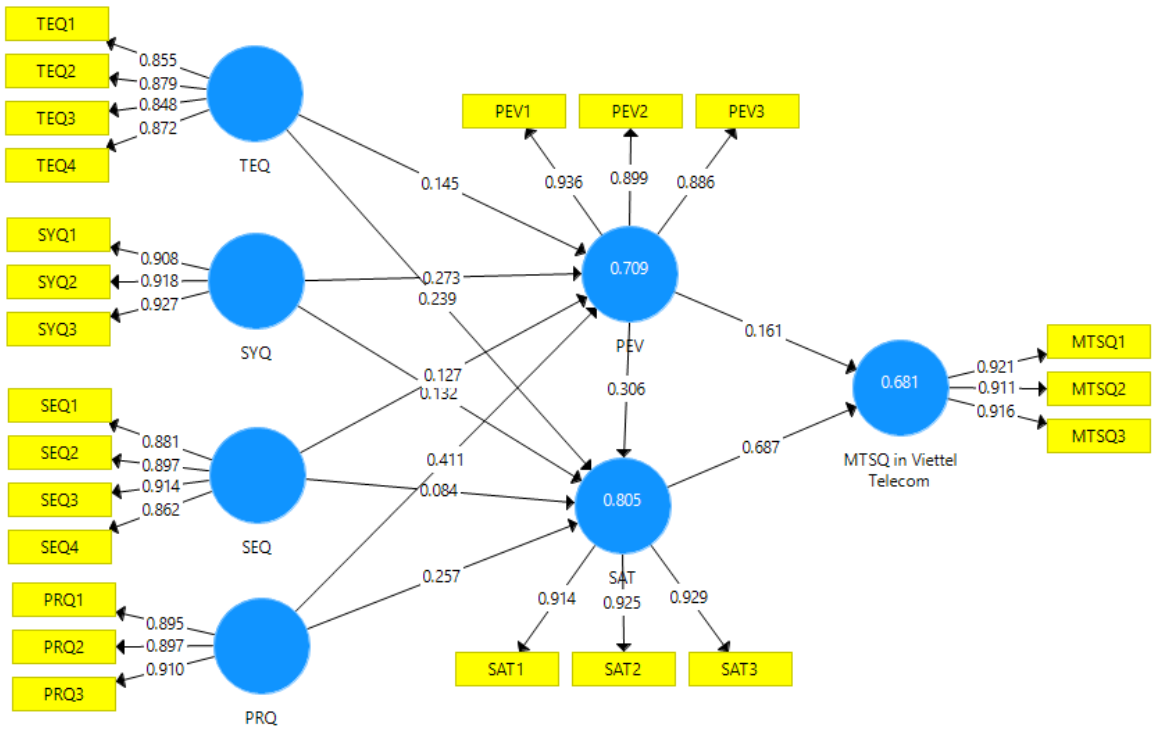
Moreover, the model quality was also measured using the global fit index (GoF). The GoF value is calculated by using the formula: GoF = $\sqrt[2]{\boldsymbol{Average\ R^2} * \boldsymbol{Average\ communality}}$. The results show that GoF = 0.783, indicating a high level of model fit (Wetzels et al., 2009; Henseler & Sarstedt, 2013). Furthermore, the results in Table 7 show that all Q^2 coefficient values are greater than 0, with the smallest value being 0.561, demonstrating a high level of predictive

accuracy (Hair et al., 2016; Henseler et al., 2012). Additionally, the SRMR coefficient (the standardized root mean square residual, representing the average value of the standardized residuals between the observed and predicted matrices) = 0.053 < 0.08, indicating a good level of model fit (Hu & Bentler, 1998). Based on all these results, this study has demonstrated that the PLS model is very well confirmed to fit the empirical data

4.3 Research Model Testing and Hypothesis Validation

The results of hypothesis testing are presented by the authors through Figure 2, Figure 3 and Table 6 below:

Figure 2. Estimated Model Results using SMART PLS-SEM



Source: Estimation results from SmartPLS

Table 6. Results of Relationship Testing between Variables

Hypothesis	Relationship	Impact Coefficient	P Value	f^2	Result
H1	TEQ → PEV	0.145	0.017	0.028	Accepted
H2	TEQ → SAT	0.239	0.001	0.109	Accepted
H3	SYQ → PEV	0.273	0.000	0.092	Accepted
H4	SYQ → SAT	0.132	0.014	0.029	Accepted
H5	SEQ → PEV	0.127	0.033	0.020	Accepted
H6	SEQ → SAT	0.084	0.005	0.013	Accepted
H7	PRQ → PEV	0.411	0.000	0.265	Accepted
H8	PRQ → SAT	0.257	0.000	0.122	Accepted
H9	PEV → SAT	0.306	0.000	0.140	Accepted
H10	PEV → MTSQ	0.161	0.004	0.025	Accepted
H11	SAT → MTSQ	0.687	0.000	0.465	Accepted

Source: Analysis results

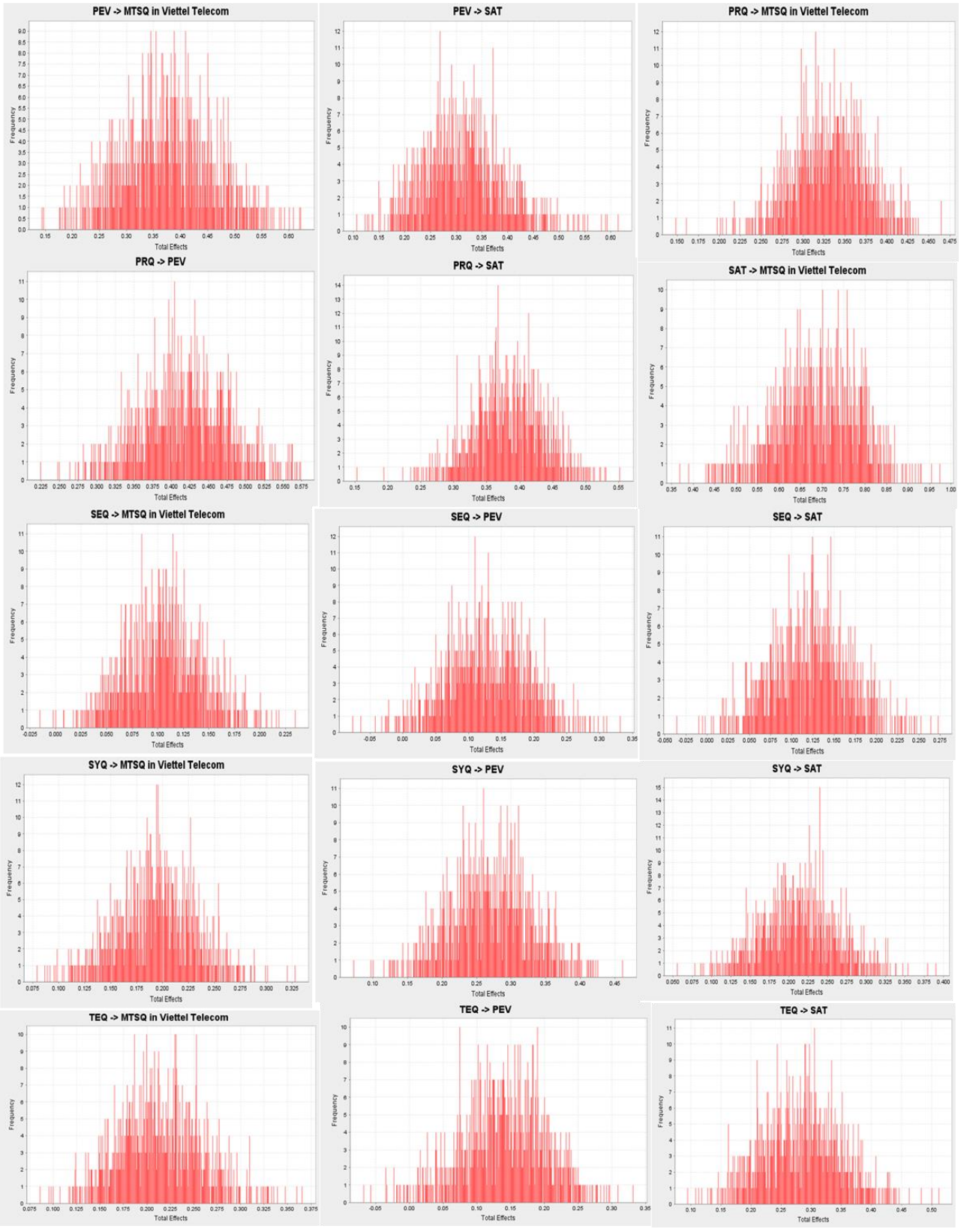


Figure 3. Path Coefficient Graph

Source: Estimation results from SmartPLS

Table 7. Q² Coefficient Analysis Results

	SSO	SSE	Q² (=1-SSE/SSO)

MTSQ in Viettel Telecom	819.000	359.358	0.561
PRQ	819.000	819.000	
SYQ	819.000	819.000	
TEQ	1092.000	1092.000	
SEQ	1092.000	1092.000	
PEV	819.000	354.931	0.567
SAT	819.000	267.833	0.673

Source: Analysis results

By using the Bootstrapping function with a repeated sample size of 5000 observations (Hair et al., 2017), the analysis of the regression coefficients in Table 6 shows that all relationships in the model are statistically significant. Comparing the impact levels of the four independent variables: technical quality, system quality, service quality, and price quality on the dependent variable perceived value in descending order as follows: PRQ, SYQ, TEQ, and SEQ. The impact levels of the five variables: technical quality, system quality, service quality, price quality, and perceived value on the dependent variable satisfaction in descending order are: PEV, PRQ, TEQ, SYQ, and SEQ. Comparing the impact levels of the two factors perceived value and satisfaction on MTSQ, satisfaction has a greater impact on MTSQ than perceived value does on this factor.

Hypothesis Validation: All hypotheses are accepted at a 95% confidence level, indicating that technical quality, system quality, service quality, and price quality all contribute to perceived value. Additionally, technical quality, system quality, service quality, price quality, and perceived value all contribute to customer satisfaction. Perceived value and satisfaction together contribute to MTSQ as evaluated by customers. Moreover, the results also show that the impact coefficient of perceived value on MTSQ is 0.161, while the impact coefficient of satisfaction on MTSQ is 0.687, with statistically significant p-values. This indicates that satisfaction has a stronger impact on MTSQ at Viettel Telecom compared to perceived value. Customers will perceive Viettel Telecom's MTSQ as better when customer satisfaction is considered high, which is more important than their perceived value. This confirms that MTSQ and customer satisfaction are two entirely distinct concepts and that there is a positive impact of customer satisfaction on MTSQ.

5. DISCUSSION

The research results have shown that the quality of mobile telecommunications services at Viettel Telecom is determined by the model by the influence of component factors through the mediating role of perceived value and customer satisfaction. This has not been found in previous studies such as: Panama et al. (2023); Al-Debei et al. (2022); Nguyen Van et al. (2024) and Lu (2024), this comprehensive theoretical framework on MTSQ can be considered a new finding in MTSQ research and is well-suited to the current context of rapid digital transformation. In addition, the research results show that there is a similarity in the mediating role factor model of perceived value and satisfaction with research of Nguyen Van et al. (2024) and Lu (2024). However, a new discovery in this study focuses on the mediating role of Perceived Value and Satisfaction towards Mobile Service Quality while the study by Nguyen Van et al. (2024) points out the customer engagement, In the study by Nguyen Van et al. (2024) and Lu (2024), customer loyalty to service providers is examined within the context of Vietnam's mobile telecommunications industry. In other words, the research results provide a comprehensive and generalized theoretical framework for MTSQ.

At the same time, previous authors have considered, evaluated and considered satisfaction as the service quality of the provider in the context of the mobile telecommunications industry. Meanwhile, the results show that satisfaction and perceived value play a mediating role in the relationship between factors for mobile telecommunications service quality at Viettel Telecom, this is a new discovery about the mobile telecommunications service quality model that can be applied to other service providers in Vietnam.

6. CONCLUSION AND MANAGEMENT IMPLICATIONS

This study purposely explores various aspects of factors affecting MTSQ at Viettel Telecom by measuring the impact of component quality factors on MTSQ and suggesting multiple management implications for the quality of mobile telecommunications services improvement. Based on theories as well as previous researches, the authors have proposed a research model. The quantitative research results show that all proposed hypotheses are accepted as satisfying the conditions.

The results contribute to providing a theoretical framework model on the relationship between component factors and MTSQ. More importantly, the results of this study have highlighted the positive impact of customer satisfaction on MTSQ, as well as affirmed that satisfaction and MTSQ are two entirely distinct concepts—an aspect that previous research has not explored or clarified. Simulatenously, it provides policy implications assisting Viettel Telecom to

improve the quality of mobile telecommunications services. Thereby, the conglomarate possibly create a sustainable customer connection as well as maintain its top position as a mobile telecommunications service provider in the Vietnamese market.

From the above research results, the authors proposes some management implications as follows:

First, insufficient aspects should have constant advancement to increase customer perception and satisfaction when using Viettel Telecom's mobile telecommunications services as follows:

Improve technical quality: Agha Kasiri & Mansori (2016) demonstrate that technical quality plays a crucial role in positively influencing customer loyalty in the mobile telecommunication services sector. Suppliers need to adequately invest in equipment and transmission network infrastructure enough for good coverage as well as update advanced technology recommended by the association and the issued standards of state agencies to meet customers' needs of stable connections, especially during peak times and simultaneous access times.

System quality: Pham et al. (2024) show that businesses investing in improving management methods, such as integrating new technologies into their business models, can enhance both enterprise value and operational performance through improved customer experiences. Therefore, suppliers should have investment policies to regualrly upgrade the system to facilitate users' communication process and aid the communication interface. The steps involved in the operational process must be simplified and responsive to customers in an instant manner.

Service quality: implementing advertising programs; linking with promotional cooperation partners through user-interface systems or on television channels; regularly providing customers with new services and technologies to improve customer experience at Viettel Telecom. Simultaneously, building a quick feedback system helps address complaints or inquiries in the shortest time possible, thus fostering trust and customer satisfaction.

Price quality: need to focus on building pricing strategies and policies in the format of preferential programs on service rates for loyal customers and new customers; offer the additional 4G and 5G connection capacity program for postpaid customers, incentives to reduce call rates for prepaid subscribers, and additional charges for intra-network calls. In addition, creating loyalty programs, exclusive promotions, or value-added service packages can enhance customer engagement and retention.

Second, Viettel Telecom needs to enhance customer perceived value by regularly conducting customer surveys and integrating interaction channels such as mobile apps, websites, AI chatbots, and social media to deliver a seamless and convenient experience. Additionally, the company should strengthen and innovate its advertising and promotional activities to attract potential customers and build long-term relationships with suppliers.

Third, Viettel Telecom can increase customer satisfaction after their mobile telecommunications services experience, since satisfaction is the fundamental factor for any businesses' survival and sustaianbility. In the information technology - telecommunications revolution, customers are exposed to large informational database and desire much more support, thus, Viettel Telecom has to satisfy their customers with more qualified services.

A limitation of this study is related to the sampling approach. Although the authors employed a stratified probability sampling method, which is highly representative in statistical terms, Viettel Telecom provides services across 63 provinces and cities. Therefore, a limitation of this research is that the sample size for analysis remains limited and does not strongly represent the entire population of the study. Future research could focus on increasing the sample size to achieve more generalizable results. Expanding the sample across more diverse geographic areas and customer segments will help ensure that the findings are more representative of the entire population and provide deeper insights into customer behavior across different regions.

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