

## THE MEDIATION EFFECT OF PERCEIVED SERVICE VALUE OF ONLINE FOOD PRODUCT TRANSPORTATION SERVICE PROVIDERS TO DEVELOP SUSTAINABLE SUPPLY CHAIN PERFORMANCE

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### Abstract

The purposes of this research were to study the effects of service quality and perceived service value on sustainable supply chain performance of online food delivery services. The sample consisted of 200 people who had used the Internet and ordered food online in Bangkok. The sample size was determined by 20 times greater than the number of observed variables in the research model and stratified random sampling was used. The research tool was a questionnaire. Statistics used in data analysis were frequency, percentage, mean, standard deviation, confirmatory factor analysis and structural equation modeling. The results revealed that service quality and perceived service value had a positive direct effect on sustainable supply chain performance and service quality had a positive effect on sustainable supply chain performance with the mediation effect of perceived service value. Such findings can be used as guidelines that are useful for organizations to apply to improve the efficiency of their operations, including using it as a guideline in setting business strategies to enhance sustainable supply chain performance. In addition, the government can use research results to design policies or provide advice to online logistics business operators in order to develop the country's economy.

**Keywords:** Perceived service value, Sustainable supply chain performance, Service quality, Transportation Services, Online food product

### Introduction

From the continuous expansion of the e-commerce business and it is expected that there will be higher growth. This affects food delivery service providers who have more competition due to the expansion of the e-commerce business, especially foreign competitors that affect the economic stability of the country due to money flowing out of the country, coupled with social and environmental problems (Nualkaw et al., 2021). Logistics businesses have in the past focused on the value of fast service and low-cost operations (Setthachotsombut & Aunyawong, 2020). Therefore, it is an important problem for domestic transport service providers to hasten to adjust their operating methods in order to retain existing customers and find ways to add more new customers to the organization. Because at present, in addition to the competition of competitors in

the domestic business, there are foreign competitors entering the transportation service business from the free trade agreement in the ASEAN Economic Community (Waiyawat et al., 2022). In addition, there is the issue of economic contraction in many countries. This has caused transportation service providers to compete for market share (Phrapratanporn et al., 2022).

The important thing that food transportation service providers must expedite at present is to adapt and change new ways of thinking to support increased competition in the market. This creates trust in the business in the long run (Aunyawong et al., 2021). Bringing technology and innovation to help manage the business builds confidence among customers and business partners (Waiyawuththanapoom et al., 2020; Tirastittam et al., 2020; Sommanawat et al., 2021). Extensive supply chain collaboration increases marketing channels and continuously expands customer base (Aunyawong et al., 2020). Expertise of personnel (Wisedsin et al., 2020; Phrapratanporn et al., 2019), service value (Wararatchai et al., 2023) and safety standards in transportation services (Kerdpitak et al., 2022) give customers confidence that the goods arrive at their destination safely in specified time and good condition.

The research, therefore, aims to study the effects of service quality and perceived service value on sustainable supply chain performance of online food delivery services. The results of the study will be beneficial to economic, social and environmental developments of the country. Transportation service providers can use such results as a guideline for operating their online food delivery services where competition is becoming more intense in order to develop businesses to grow continuously. In addition, academicians can use such results for further research for solving business problems sustainably.

## Literature review

### Sustainable Supply Chain Performance

At present, the economic model has changed. In the modern economy, every business organization must pay attention to the economy that deals with sales, market share, profits, which are the main factors of every business, resulting from the implementation of activities to meet the needs and satisfaction of consumers. Businesses and their supply chain partners, however, must have social and environmental operations along with the business growth, especially the transportation business, which clearly affects the environment. Transportation service providers, therefore, must realize economic performance to create supply chain sustainability (Aunyawong et al., 2021; Prachayapipat et al., 2022), especially recognizing circular economy practices (Malhotra, 2023).

### Service Quality

Customer service of transportation service providers is the operation of cooperation of all logistics activities in the organization as one such as production, service, marketing, etc. to add value to the organization resulting in customer satisfaction and corporate success. Customer satisfaction is a positive reaction to a product or service that depends on service quality (Nopphakate & Aunyawong, 2022). This service quality is therefore valuable to help keep customers or users from

getting lost in the service with competitors. Transportation service in each logistics service provider has many different elements in each food and beverage business (Zailani et al., 2018). (Service quality plays a key role in supporting a company's performance, customer selection and business success by which logistics service providers can use a suitable service approach suitable for customer expectations (Pakornpongwathana & Aunyawong, 2022).

In addition, previous research, as conducted by Fernandes et al. (2018), portrays the mediation effect of service quality on the effect of logistics capabilities on customer satisfaction. Besides, depicts that quality of information media (Hiranphaet et al., 2023) and information sharing (Pintuma et al., 2020) are important factors of logistics service quality. While Gil-Saura et al. (2018) identifies that logistics service quality affects perceived service value, customer satisfaction, and customer loyalty, in which customer satisfaction and loyalty are the indicators of service business success. Phrapratanporn et al. (2019), moreover, suggests that business growth, customer satisfaction, management potential, employee satisfaction, and innovative organization are the indicators of supply chain performance of logistics service providers. From the above information, the research hypothesis can be as follows.

**H1:** Service quality has a direct effect on sustainable supply chain performance.

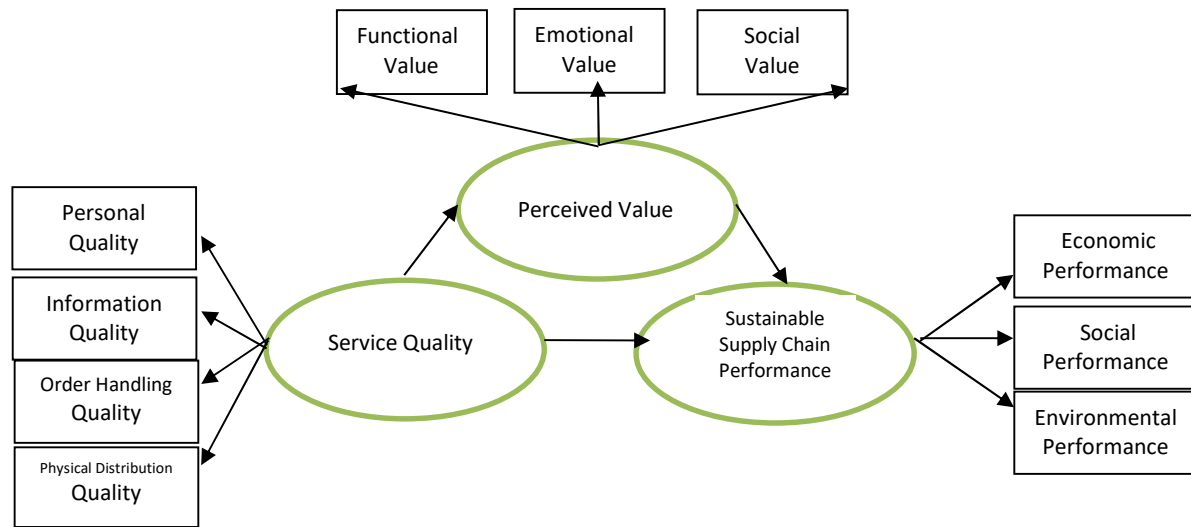
**H2:** Service quality has a direct effect on perceived service value.

### **Perceived Service Value**

Perception is a psychological process by which an individual chooses to interpret a perceived stimulus. In business, customer perception is a component of consumer psychology, which is an internal factor in consumer buying decision patterns. It will have a direct effect on the consumer buying decisions that step from attending to perception, finding information to make decisions, and evaluating purchase options (Malik et al., 2023). This can be well developed as a service metric of the logistics business. In the logistics business, the perception of service quality can be defined as evaluation of the service activities of a logistics or transport provider regarding the utility of goods or services in comparison between the money paid and the time wasted compared to the value received. The more perceived value affects the more satisfaction and loyalty (Yuyangyuen & Aunyawong, 2023). The measure of perceived value obtained from the activities to create values, consisting of functional value, social value, and emotional value (Nualkaw et al., 2021). The research, therefore, hypothesizes that:

**H3:** Perceived service value has a direct influence on the sustainable supply chain performance.

**H4:** Perceived service value mediates the effect of service value on sustainable supply chain performance



**Figure 1:** Conceptual framework

## Research Methodology

### Population and Sample

For quantitative study, the population was approximately 6,000,000 internet users purchasing online food products in Bangkok, classified into five spans of age as concluded by National Statistical Office, 2022). The sample size of 200 respondents was calculated from 20 times greater than the number of observed variables in the study (20\*10) (Hair et al., 2010) to ensure normal distribution, which was the preliminary analysis. The study had 2 steps in sampling: first, stratified sampling was conducted based on proportion allocation by ages, and second, simple random sampling was used.

### Research Instrument

The research used a questionnaire as the research instrument for quantitative study. The questionnaire will be verified its content validity using  $>0.50$  IOC (Petchroj and Chamniprasat, 200) and construct validity using second order confirmatory factor analysis. The results found that the questions were consistent with the empirical variables, along with the verification of reliability with Cronbach's Alpha Coefficient, Construct Reliability (CR) and Average Variance Extracted (AVE) of latent variables suggested by as Fornell and Larcker (1981) and Diamantopoulos and Siguaw (2000). As described in the literature study, the five-point Likert scale questionnaire included questions linked to research variables and based on the ideas of previous studies. For the interpretation of quantitative data, the criteria given by Best and Kahn (2006) were employed.

### Statistical and Data Analysis

The data analysis of the research was based on the research objectives, which detailed as follows: first, descriptive statistics consisted of percentage to survey the characteristics of personal factors,

second, confirmatory factor analysis (CFA) of service quality, perceived service value, and sustainable supply chain performance of online food product transportation service providers, and finally, structural equation modeling (SEM) to find the model of the mediation effect of perceived service value of online food product transportation service providers to develop sustainable supply chain performance.

## results

### Testing Results of Measurement Model

The findings indicated that the observed variables valued skewness less than 3 and kurtosis less than 8, considering a normal distribution, (Kline, 2005). All variable factor loadings were positive and statistically distinct from zero at the.001 level. The variable with the highest factor loading was environmental performance (PER3) with a factor loading of.75. The variable with the lowest factor loading was functional value (VAL1) with a factor loading of.57. Moreover,  $R^2$  ranged from .48 to.63, as seen in Table 1.

Table 1 Testing Results of Measurement Model

Variables	Factor Loadings		t-value	R <sup>2</sup>	ξ
	B	SE			
Service Quality (SER)					
Personal Quality (SER1)	0.70	0.10	11.26**	0.55	0.45
Information Quality (SER2)	0.68	0.09	11.36**	0.48	0.44
Order Handling Quality (SER3)	0.69	0.08	10.44**	0.52	0.52
Physical Distribution Quality (SER4)	0.73	0.06	10.93**	0.62	0.43
Perceived Service Value (VAL)					
Functional Value (VAL1)	0.57	0.03	17.70**	0.52	0.48
Emotional Value (VAL2)	0.63	0.04	24.32**	0.59	0.31
Social Value (VAL3)	0.69	0.04	26.94**	0.63	0.21
Sustainable Supply Chain Performance (PER)					
Economic Performance (PER1)	0.68	0.05	20.12**	0.51	0.57
Social Performance (PER2)	0.74	0.05	20.85**	0.53	0.45
Environmental Performance (PER3)	0.75	0.05	20.13**	0.57	0.42
Correlation matrix			(SER)	(PER)	(VAL)
Service Quality (SER)			1.00		
Sustainable Supply Chain Performance (PER)			0.88	1.00	
Perceived Service Value (VAL)			0.85	0.84	1.00
CR and AVE			(VAL)	(PER)	(SER)
Construct Reliability: $\rho_c$			0.864	0.759	0.788
Average Variance Extracted: $\rho_v$			0.532	0.536	0.563
Chi-Square = 30.35, df = 42, P-value = 0.90, RMSEA= 0.000, SRMR = 0.017, CFI = 1.00, GFI =0.99, AGFI = 0.98					

Note:\*\*P < 0.01, SE=Standard Error, B=Standardized Factor Loading,  $\xi$  = Variance of Standard Error

### Path Analysis Results

The results found that 1) the service quality (SER) of online food product transportation service providers had a positive direct effect on sustainable supply chain performance (PER), with a statistically significant effect size of 0.49, therefore, the hypothesis 1 was accepted, 2) SER of online food product transportation service providers had a positive direct effect on perceived service value (VAL), with a statistically significant effect size of 0.81, thus, and hypothesis 2 was accepted, 3) VAL had a positive direct effect on PER, with a statistically significant effect size of 0.68, therefore, hypothesis 3 was accepted and 4) VAL mediated the effect of SER on PER, with a statistically significant effect size of 0.55, so hypothesis 4 was accepted,, as shown in Figure 1 and Table 2-3.

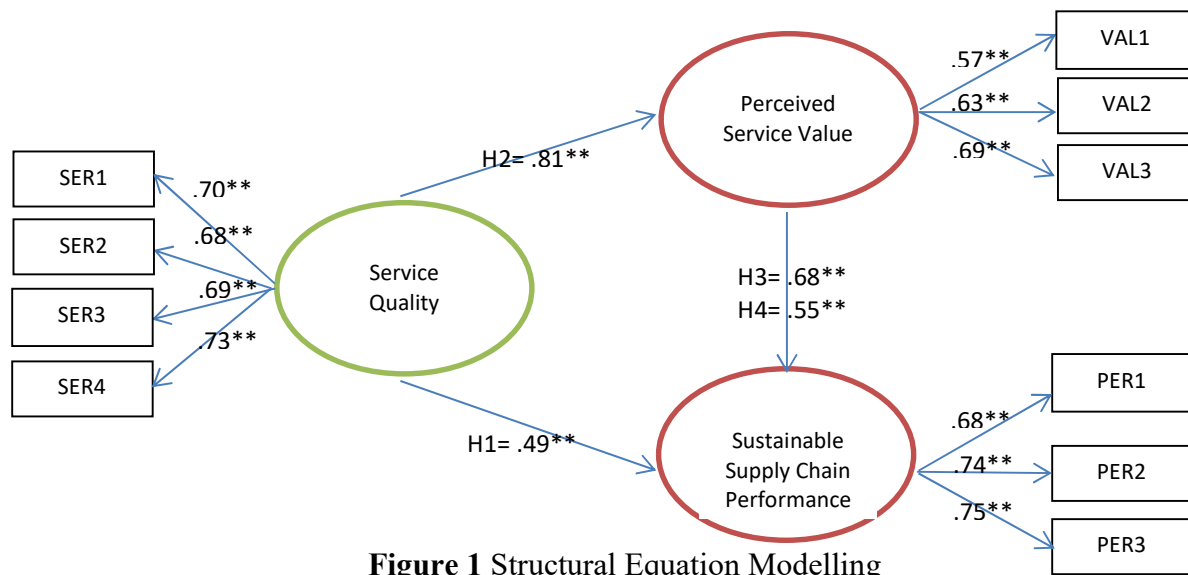


Figure 1 Structural Equation Modelling

Table 2 Direct, Indirect and Total Effects

Independent Variables	Dependent Variables					
	Perceived Value (VAL)		Service	Sustainable Performance (PER)		Supply Chain
	TE	IE	DE	TE	IE	DE
Service Quality (SER)	0.81**	-	0.81**	0.86**	0.37**	0.49**
Perceived Service Value (VAL)				0.68**	-	0.68**
Structural Equation	Perceived Value (VAL)		Service	Sustainable Performance (PER)		Supply Chain
R-SQUARE (R <sup>2</sup> )	0.71			0.83		

Chi square = 31.55, df = 44, P-value = 0.823, RMSEA = 0.000, SRMR = 0.016, CFI = 0.98, GFI = 0.99, AGFI = 0.98

Note: TE = Total Effect, IE = Indirect Effect, DE = Direct Effect, \*\* P < 0.01

Table 3 Hypothesis Testing Results

Hypotheses	Accept	Reject
H <sub>1</sub> Service Quality → Sustainable Supply Chain Performance	✓	-
H <sub>2</sub> Service Quality → Perceived Service Value	✓	-
H <sub>3</sub> Perceived service value → Sustainable Supply Chain Performance	✓	-
H <sub>4</sub> Service Quality → Perceived service value → Sustainable Supply Chain Performance	✓	-

### Conclusion and Discussion

The results of the research provide ways to develop Thailand small transport businesses. In the past, all businesses were only competing for the highest profits, but social and environmental issues were deteriorating. The findings depicted that the main service quality activities that results in sustainable supply chain performance consists of human, information, order handling and physical distribution, as in line with Fernandes et al. (2018) and Zailani et al. (2018). These adhere to consumer behavior and high communication technology, which can be measured by consumer satisfaction from online delivery, direct communication with customers, fast services, and willingness of services, resulting in more sales, higher market share, and business growth (Phrapratanporn et al., 2019; Malik et al., 2023).

In addition, the study has found that social and environmental development as well as perceived service value, especially social value, are importance to the consumers because at present the economic operation has changed in the modern economy, as in agreement with Nualkaw et al. (2021) and Malhotra et al. (2023) .Online food product transportation service providers, therefore, should be focus on the quality staff that can make customer satisfaction and effective information technology supporting perfect order fulfillment to obtain perceived service value and sustainable supply chain performance. Further study should focus on service quality from other perspectives according to the changing times by probably studying the performance of transportation service providers together with the seller of online products in the same model in order to know the results that happened to the online business in the future.

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