

# Mediation Role of Service Capabilities in Supply Chain Integration on Supply Chain Performance in Small and Medium Enterprises

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**Abstract.** The research objective is to analyze the effect of supply chain integration on supply chain performance mediated by service capabilities. Data samples were taken by 250 SME owners in the Jabodetabek (Jakarta, Bogor, Depok, Bekasi) area using Google forms. The data used is cross sectional and the approach used is structured equation modeling. The results of this study are Supply Integration has an effect on Service Capabilities (service reliability, service feasibility, service efficiency, added value), Service Capabilities (service reliability, service flexibility, service efficiency, added value) affect Supply Chain performance and Supply Chain Integration has an effect on supply chain performance mediated by Service Capabilities (service reliability, service ability, service efficiency, added value). In conclusion, in SMEs the role of Service Capabilities (service reliability, service flexibility, service efficiency, added value) in supply chain integration on chain performance supply is done.

**Keywords:** Supply Chain Integration; Service Capabilities; Supply Chain Performance; Small and Medium Enterprises

## 1 Introduction

In the current conditions, small and medium enterprises (SMEs) face competition with foreign companies in terms of price, quality, speed of product innovation. Another thing is that the Covid 19 Pandemic makes it worse, for that SMEs must have a competitive advantage in order to survive in the market, one of which is in terms of supply chain activities. Supply Chain Management is a prominent field of science in giving companies to form a competitive advantage in the long term [1] Integrative organizational collaboration improves organizational performance (green et al., 2006; Tracey and Tan, 2001) and supply chain performance (Gunasekaran et al., 2004; Otto and Kotzab, 2003). Integration in the supply chain is required in improving supply chain performance.

Supply chain integration which is a collaboration strategy of both internal and external factors of the company which includes the support of managers, coordination between departments / sections, information technology, goal congruence, and communication collaboration will affect the performance of the supply chain. The benefits of Supply Chain Integration must be applicable into service capabilities assessed by consumers such as service

reliability (Lu, 2007), Service Flexibility (Rozenzweig et al., 2003; Holweg et al, 2005), Service Efficiency (Kogut and Zander, 2003), and Value Added Service (notteboom, 2004; Wang and Cullinane, 2006) because this capability is able to develop a valuable and special superiority advantage (Barney et al., 2001). Research from [2], examines the role of supply chain integration in improving supply chain performance. Research [3], examined that supply chain integration is applied in service capabilities because these capabilities are able to develop a valuable competitive advantage.

## 2 Literature Review

### 2.1 Supply Chain Integration

Supply Chain Integration is a strategic alliance with supply chain partners. The organization's internal and external collaborative management processes establish and maintain a seamless channel for the timely movement of materials, finished goods, information, decisions and services to end consumers. [4], [5] Supply chain integration requires strategic relationships with supplier chain partners [6]. In particular, supply chain integration involves collaboration between focus firms and their customers and suppliers in managing business boundary expansion activities, including collaboration in purchasing, planning and forecasting and joint product development [7].

Supply chain integration is the company's ability to manage both intra and inter-organization to achieve efficient flow of products, services, information and money [8]. This refers to the company's expertise in strategically collaborating with its supplier partners and co-operatives in managing processes to manage maximum value to customers at minimal cost [9], according to [10] the most important goal of Supply Chain Integration is to obtain effective and efficient transfer of products, services, information, money, and decisions through coordinated efforts, and the exchange of information with the aim of providing the best value to consumers at a low cost without hindrance. Supply Chain integration in the company is very important to build mutual trust with other companies, can focus more on managing relationships and more easily get the information needed both from inside and outside the company.

### 2.2 Service Capabilities

*Supply chain service capabilities* are the result of a combination of the attempt of entire external and internal partners of the supply chain that refers to the capability of the whole supply chain to recognize, utilize and comprehend resources, skills and accumulated internal and external knowledge of the organization to facilitate and add value to all supply chain service activities more efficiently, flexibly and reliably. [4], [5]

The Supply Chain *Capabilities Service* results from the synergy of entire external and internal partners of the supply chain and refers to the capability of the whole supply chain to recognize, utilize, and comprehend the two extra and intra-organizational assets, expertise, and assembled knowledge to ease and add value to be efficient, flexible and reliable in all supply chain service activities. We propose that a highly integrated supply chain makes it possible to build different services capabilities (capabilities) in four areas of the supply chain: *Service Reliability* (Reliability of services), *Service Flexibility* (Service Flexibility), *Service Efficiency* (Service Efficiency), and *Value Added* (Value Added). Companies that implement

integration on the supply chain and utilize it to create *Service Capabilities* supply chain that represent a high level of organizational capability. [3].

### 2.3 Supply Chain Performance

Supply Chain Performance is a process to see how effective and efficient a systematic supply chain activity (Anand and Grover, 2015). Companies and suppliers involved in supplying raw materials and equipment, producing goods, or delivering them to end customers are a physical network of supply chain performance [11]. Zaroni (2017) stated that increasing competitive advantage through the efficiency of distribution and production costs and the accuracy of product quality to the end customer is an effective and efficient supply chain performance. Supply chain performance has the goal of maximizing value to end customers [12]. Good supply chain performance will create more targeted companies and good profits for suppliers, agents, and end customers [13]. In the performance of the supply chain the priority is to maintain the quality and timeliness of delivery, which is important because it concerns consumer confidence [14]. [15] emphasized that those involved in the performance of the supply chain which is a company with similar interests, namely: *Suppliers, Manufacturers, Distribution, Retail Outlet, Customers*.

According to Veera and Chandran (2016), indicators of supply chain performance measurement are accuracy of financing, the coordination of parts, suppliers, monumen and increased sales. If a company's supply chain performance is effective and efficient compared to other companies it will be a source of competitive advantage for the company [16].

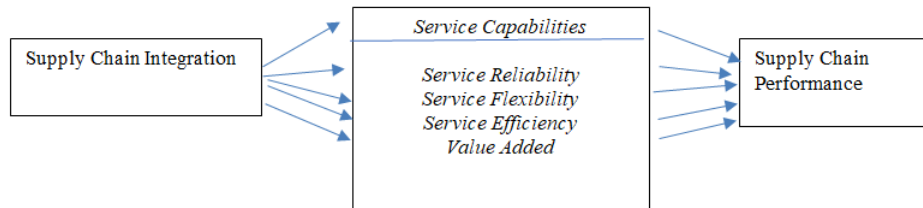
### 2.4 Understanding MSMEs/SME

MSMEs (Micro, Small and Medium Enterprises) According to Law no. 20 of 2008: Micro-enterprises are individual-owned businesses and/or individual productive business entities in accordance with the requirements of Micro-enterprises as regulated in this Law. Maximum turnover of IDR 300 million per year and Maximum assets owned IDR 50 million (excluding land and buildings of business premises). Small Business is a stand-alone productive economic venture, conducted by individuals or business entities that are not subsidiaries or are not branches of companies owned, controlled, or become part of either directly or indirectly from Medium Enterprises or Large Businesses that meet the criteria of Small Businesses as referred to in this Law. maximum turnover of more than IDR 300 million - IDR 2.5 billion per year and Assets of more than IDR 50 million - IDR 500 million (excluding land and buildings for business)

### 2.5 Conceptual Framework

Supply chain integration which is a collaboration strategy of both internal and external factors of the company which includes the support of top managers, coordination between departments / parts, information technology, goal congruence, and communication collaboration will affect the performance of the supply chain. The benefits of Supply Chain Integration must be applicable into service capabilities assessed by consumers such as service reliability (Lu, 2007), Service Flexibility (Rozenzweig et al., 2003; Holweg et al, 2005), Service Efficiency (Kogut and Zander, 2003), and Value Added Service (notteboom, 2004; Wang and Cullinane, 2006) because this capability is able to develop a valuable and special

superiority advantage (Barney et al., 2001). For that can be made conceptual framework image as follows:



**Fig. 1.** Conceptual Framework

## 2.6 Development of Hypotheses

Previous research (Bagchi and Skjoett-Larsen, 2005; Fabbie Costes and Jahre, 2007,2008; Horvaerth, 2001; Wisner, 2003; Kim, 2006; Power, 2005) concluded that the success of a company and its supply chain depends on its supply chain integration. . But despite its importance, supply chain integration is only newly researched [4]. the most intensive level of strategic Alliance is Supply Chain Integration (Simchi-Levi et al, 2003; Kim, 2006). increased value of goods and services, market entry, strong operations, technological and enterprise skills caused by strategic alliances (Simchi-Levi et al. , 2003). Therefore it is possible that supply chain integration may be related to *service capabilities*. Supply chain integration has been proposed to improve customer response in *service capabilities*, and barriers to functions or organizations are eliminated, thus leading to efficient relationships in *service capabilities* and strengthening the competitiveness of *service capabilities*. Stevens, 1990). From the literature above, the following hypothesis can be drawn:

- a. Hypothesis 1: Supply chain integration affects service capabilities
- b. Hypothesis 2: Supply chain integration affects service reliability
- c. Hypothesis 3: Supply chain integration affects service flexibility
- d. Hypothesis 4: Supply chain integration affects service efficiency
- e. Hypothesis 5: Supply chain integration affects value added

Previous research (Flynn and Flynn, 1999) conclude that the company's performance, both individually and/or with other capabilities, is due to a positive contribution from efficiency, reliability, and flexibility . the competitive capability of manufacturing strategies from conventional policies results in increased company survival and growth. l. (Rosenzweig et al, 2003). Achieving customer satisfaction is related to Competitive Ability, Marketing performance (Kim, 2006), and general performance. From the literature above, the following hypothesis can be drawn:

- a. Hypothesis 6: *Service Capabilities* affect supply chain performance
- b. Hypothesis 7: *Service Reliability* affects Supply Chain Performance
- c. Hypothesis 8: *Service Flexibility* affects Supply Chain Performance
- d. Hypothesis 9: *Service Efficiency* affects Supply Chain Performance
- e. Hypothesis 10: *Value added* affects Supply Chain Performance

Supply Chain Management is a prominent field of science in giving companies to form a competitive advantage in the long run (Azadi et al., 2014). Integrative organizational collaboration improves organizational performance (green et al., 2006; Tracey and Tan, 2001) and supply chain performance (Gunasekaran et al., 2004; Otto and Kotzab, 2003). Integration in the supply chain is necessary in improving supply chain performance. Supply chain

integration which is a collaboration strategy of both internal and external factors of the company which includes support of pucak manajaer, coordination between departments / parts, information technology, *goal congruence*, and communication collaboration will affect the performance of the supply chain.

The benefits of Supply Chain Integration should be applicable into *service capabilities* assessed by consumers such as service *reliability* (Lu, 2007), *Service Flexibility* (Rozenzweig et al., 2003; Holweg et al, 2005), *Service Efficiency* (Kogut and Zander, 2003), and Value Added *Service* (notteboom, 2004; Wang and Cullinane, 2006) because this capability is able to develop a valuable and special superiority advantage (Barney et al., 2001) From the literature above it can be drawn the following hypothesis:

- a. Hypothesis 11: Supply chain integration affects supply chain performance through service *capabilities*
- b. Hypothesis 12: Supply chain integration affects supply chain performance through service *reliability*
- c. Hypothesis 13: Supply chain integration affects supply chain performance through service *flexibility*
- d. Hypothesis 14: Supply chain integration affects supply chain performance through service *efficiency*
- e. Hypothesis 15: Supply chain integration affects supply chain performance through Value *added*

## 2.7 Research Methodology

This study refers to previous research conducted by Veera Pandiyan Kaliani Sundram, V.G.R. Chandran, and Muhammad Awais Bhatti (2016), [3]. Based on the purpose of the design research used in this study is the testing of hypotheses that have the goal of explaining certain relationships, establishing differences between groups of two or more factors in the situation [17]. The hypothesis test was conducted to check the effect of Supply Chain Integration on Supply Chain Performance through Service *Capabilities* on SMEs.

The data that will be used in this study is *cross sectional* data because data collection is done by doing one collection with a daily, weekly, monthly period in answering research questions [17]. In this study, the analysis unit was addressed to individuals, namely SME owners in the Jabodetabek region by spreading questionnaires as many as 250 SMEs. In this study, the three variables were measured using the Interval Scale, which is used to give numbers, have levels, and have distances. The type of interval scale used in this study is the *Likert* scale, which uses 5 scales namely:

- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Simply Agree
- 4 = Agree
- 5 = Very Agree

**Table 1.** Validity Test Results on Supply Chain Integration Variables

Indicators	Loading Factor Value	Decision
In the supply chain, SMEs often make contact with each other.	.587	Valid
In supply, SMEs often make contact with each other.	.739	Valid
SMEs extend their supply chains beyond existing consumers/suppliers.	.697	Valid
SMEs participate in marketing efforts to their consumers	.494	Valid

Source: Data Processing Results Using Amos version 24

**Table 2.** Validity Test Results on *Service Capabilities* Variables

Indicators	Loading Factor Value	Decision
SMEs and suppliers offer reliability by providing booking space	.471	Valid
SMEs and suppliers offer reliability by scheduling advertising	.659	Valid
SMEs and suppliers offer accurate documentation	.703	Valid
SMEs and suppliers offer shipping security	.581	Valid
SMEs and suppliers offer varied delivery services	.588	Valid
SMEs and suppliers are more flexible in meeting different consumer needs	.671	Valid
SMEs and suppliers have a good response to consumers	.612	Valid
SMEs and suppliers are able to make adjustments in relation to addressing market changes	.472	Valid
SMEs and suppliers better meet approvals for cost per unit	.496	Valid
SMEs and suppliers meet productivity standards, better	.685	Valid
SMEs and suppliers meet timely delivery of needs, better	.689	Valid
SMEs and suppliers have a need for shorter waiting times	.527	Valid
SMEs and suppliers have the ability to provide warehouse services	.673	Valid
SMEs and suppliers have the ability to provide customs service permits	.688	Valid
SMEs and suppliers have the ability to provide multi-modal services	.699	Valid
SMEs and suppliers own the ability to provide stump services	.521	Valid

Source: Data Processing Results Using Amos version 24

**Table 3.** Validity Test Results on Supply Chain Performance Variables

Indicators	Loading Factor Value	Decision
Accuracy of financing	.556	Valid
Increased coordination between parts	.647	Valid
Increased coordination between suppliers	.755	Valid
Increased coordination between consumers	.764	Valid
Increased sales	.675	Valid

Source: Data Processing Results Using Amos version 24

In tables 1, 2 and 3 show that all variable statement items of Supply Chain *Integration*, *Service Capabilities* and Supply Chain Performance have a factor loading value of  $\geq 0.40$  which means each statement item used to measure those variables is declared precise and feasible so that these supply chain integration variables, service *capabilities* and Supply Chain Performance can be researched.

**Table 4.** Reliability Test Results

No.	Variables/Dimensions	Cronbach's Alpha	Items	Information
1	Supply Chain Integration	.717	4	Reliable
2	Service Reliabilities	.713	4	Reliable
3	Service Flexibilities	.658	4	Reliable
4	Service Efficiencies	.699	4	Reliable
5	Value Added	.707	4	Reliable
6	Supply Chain Performance	.809	5	Reliable

Source: Data Processing Results Using Amos version 24

In table 4 above, *cronbach's Alpha* value is seen as a result of reliability tests of existing instruments in the variables of Supply Chain Integration, Service *Capabilities* and Supply Chain Performance. The results showed that all instruments present on each variable had a *Cronbach's Alpha* value greater than 0.6 which means all instruments used in the research variable are *reliable*.

**Table 5. Goodness of Fit Model Test Results**

Kind Measurement	Measurement	Value	Recommended acceptance limits	Conclusion
Absolute fit measures	P- value	0.000	$\geq 0.05$	Poor fit
	ECVI	2.473	Close to Saturated value than independent (2,915)	Goodness of fit
	RMSEA	.058	$\leq 0.1$	Goodness of fit
Incremental fit measures	IFI	0.871	$\geq 0.90$ or close to 1	Marginal fit
	NFI	0.754	$\geq 0.90$ or close to 1	Poor fit
	TLI	0.856	$\geq 0.90$ or close to 1	Marginal fit
	CFI	0.869	$\geq 0.90$ or close to 1	Marginal fit
	RFI	0.729	$\geq 0.90$ or close to 1	Poor fit
Parsimonious fit measure	CMIN/DF	1,828	Lower limit 1, upper limit 5	Goodness of fit
	AIC	603.299	Close to Saturated value than independent (650,000)	Goodness of fit

Source: Data Processing Results Using Amos version 24

The results of the feasibility assessment of the above model with *the approach of Absolute Fit Measures* and *Parsimonious Fit Measures* resulted in the conclusion of goodness of fit. So the model test is said to be feasible to proceed to the next test which is hypothesis testing.

### 3 Results and Discussions

The test was conducted using *structural equation model* (SEM) analysis. Here are the results of hypothesis testing:

**Table 6. Hypothesis Test Results 1-5**

Hypothesis	Estimate ( $\beta$ )	p-value	Decision
H1: Supply Chain Integration affects Service Capabilities	0.470	0.000	Ho rejected
H2: Supply Chain Integration affects <i>Service Reliability</i> .			Ha accepted
H3: Supply Chain Integration affects <i>Service Flexibility</i> .	0.701	0.000	Ho rejected
H4: Supply Chain Integration affects <i>Service Efficiency</i> .	0.534	0.000	Ha accepted
H 5: Supply Chain Integration affects <i>Value Added</i>	0.434	0.000	Ho rejected
	0.664	0.000	Ha accepted

Source: Data results (AMOS)

Based on table 6, hypothesis one shows a *p-value* of 0.000 smaller than 0.05 and a positive *estimate* value of 0.470. The conclusion that can be drawn from the results of the hypothesis test that Ho was rejected and Ha accepted and statistically with a 95% confidence level there

is an influence on Supply Chain Integration on Service Capabilities. This explains that SMEs have integrated their supply chains well such as contacts, communication and systems that are in accordance with their suppliers so as to improve the Service Capabilities of SMEs in performing reliable, flexible, efficient and providing added value.

The second hypothesis shows a *p-value* of 0.000 smaller than 0.05 and an *estimate* value of 0.701. The conclusion that can be drawn from the results of the hypothesis test that  $H_0$  was rejected and  $H_a$  was accepted and statistically with a 95% confidence level there is an effect of supply chain integration on service reliability.

This explains that SMEs have implemented their supply chain integration well so as to improve service reliability in offering accurate information, shipping security, and scheduling.

The third hypothesis shows a *p-value* of 0.000 smaller than 0.05 and a positive *estimate* value of 0.534. The conclusion that can be drawn from the results of the hypothesis test that  $H_0$  was rejected and  $H_a$  accepted and statistically with a 95% confidence level there is an effect of supply chain integration on service flexibility.

This explains that SMEs have integrated their supply chains well such as contacts, communication and systems that are in accordance with their suppliers so as to improve the Service Flexibility of SMEs in offering varied delivery services, meeting consumer demand, good response and easy to adjust to market changes.

The fourth hypothesis shows a *p-value* of 0.000 smaller than 0.05 and an *estimate* value of 0.434. The conclusion that can be drawn from the results of the hypothesis test that  $H_0$  was rejected and  $H_a$  was accepted and statistically with a confidence level of 95% there is an influence of supply chain integration on service efficiency.

This explains that SMEs have implemented their supply chain integration well so as to improve *Service Efficiency* in meeting production standards, on-time delivery, shorter waiting times.

The fifth hypothesis shows a *p-value* of 0.000 smaller than 0.05 and a positive *estimate* value of 0.664. The conclusion that can be drawn from the results of the hypothesis test that  $H_0$  was rejected and  $H_a$  accepted and statistically with a 95% confidence level there is an influence of supply chain integration on Value Added. This explains that SMEs have done their supply chain integration well such as contacts, communication and systems that are in accordance with their suppliers so as to increase the Value Added (Value Added) of SMEs in offering door-to-door services, stock (inventory), multimodal (more than two types of modes of transportation).

**Table 7.** Hypothesis Test Results 6-10

Hypothesis	Estimate ( $\beta$ )	<i>p-value</i>	Decision
H6: <i>Service Capabilities</i> affect Supply Chain Performance	1.235	0.000	$H_0$ rejected $H_a$ accepted
H7: <i>Service Reliability</i> affect Supply Chain Performance	0.381	0.001	$H_0$ rejected $H_a$ accepted
H 8: <i>Service Flexibility</i> affect Supply Chain Performance	0.221	0.008	$H_0$ rejected $H_a$ accepted
H9: <i>Service Efficiency</i> affect Supply Chain Performance	0.367	0.000	$H_0$ rejected $H_a$ accepted
H 10: Value Added influence on supply chain performance	0.187	0.016	$H_0$ rejected $H_a$ accepted

Source: Data results (AMOS)



Based on table 7, the sixth hypothesis shows *p-value* of 0.000 smaller than 0.05 and a positive *estimate* value of 1.235. The conclusion that can be drawn from the results of the hypothesis test that  $H_0$  was rejected and  $H_a$  accepted and statistically with a confidence level of 95% service capabilities affect supply chain performance.

This explains that SMEs have done *their Service Capabilities* in performing reliable, flexible, efficient and provide added value so as to enhance the performance of the SME supply chain in coordination with suppliers, consumers, increased sales, more accurate calculations.

The seventh hypothesis shows a *p-value* of 0.001 smaller than 0.05 and a positive *estimate* value of 0.381. The conclusion that can be drawn from the results of the hypothesis test that  $H_0$  was rejected and  $H_a$  accepted and statistically with a confidence level of 95% Service *Reliability* affect supply chain performance.

This explains that SMEs have implemented *service reliability* in offering accurate information, shipping security, advertising scheduling so as to enhance the performance of the SME supply chain in coordination with suppliers, consumers, increased sales, more accurate calculations.

The eighth hypothesis shows a *p-value* of 0.008 smaller than 0.05 and an *estimate* value of 0.221. The conclusion that can be drawn from the results of the hypothesis test that  $H_0$  was rejected and  $H_a$  accepted and statistically with a confidence level of 95% Service *Flexibility* affect Supply Chain Performance.

This explains that SMEs have conducted Service Flexibility in offering varied delivery services, meeting consumer demand, good response and easy to adjust to market changes so as to enhance the performance of the SME supply chain in coordination with suppliers, consumers, increased sales, more accurate calculations.

The ninth hypothesis shows a *p-value* of 0.000 smaller than 0.05 and an *estimate* value of 0.367. The conclusion that can be drawn from the results of the hypothesis test that  $H_0$  was rejected and  $H_a$  accepted and statistically with a confidence level of 95% Service *Efficiency* affect Supply Chain Performance.

This explains that SMEs have implemented *Service Efficiency* in meeting production standards, timely delivery, shorter waiting times thus enhancing the performance of the SME supply chain in coordination with suppliers, consumers, increased sales, more accurate calculations.

The tenth hypothesis shows a *p-value* of 0.016 smaller than 0.05 and an *estimate* value of 0.187. The conclusion that can be drawn from the results of the hypothesis test that  $H_0$  was rejected and  $H_a$  accepted and statistically with a confidence level of 95% Value *Added* affect the Performance of the Supply chain.

This explains that SMEs have done *Value Added* in offering door-to-door, stock (inventory), multimodal (more than two types of modes of transportation) thus enhancing the performance of the SME supply chain in coordination with suppliers, consumers, increased sales, more accurate calculations.

Based on Baron and Kenny's stages, *Service Capabilities* can be a mediation variable if the following conditions are met:

**Table 8.** Hypothesis Test Results 11

Hypothesis	Estimate	P- Value	Conclusion
Model 1			
Supply Chain Integration affects Supply Chain Performance	0.657	0.000	There is a positive influence
Model 2			
Supply Chain Integration affects Service capabilities	0.470	0.000	Condition a fulfilled (sig.)
Service capabilities affects Supply Chain Performance	1.235	0.000	Condition b is fulfilled (sig.)
Supply Chain Integration affects Supply Chain Performance	0,611	0.000	Condition c not fulfilled (Partial mediation)

Source: AMOS data processing results version 24

Based on table 8, hypothesis eleven indicates service *capabilities* are capable of mediating supply chain integration and supply chain performance with an estimated value of 0.611. The conclusion that can be drawn from the results of the hypothesis test that  $H_0$  was rejected and  $H_a$  was accepted and statistically with a confidence level of 95% Supply Chain Integration affects Supply Chain Performance through *service capabilities*.

This explains that SMEs have integrated their supply chains well such as contacts, communication and systems that are in accordance with their suppliers so as to enhance the performance of the SME supply chain in coordination with suppliers, consumers, increased sales, more accurate calculations by performing *Service Capabilities* in the form of performing reliable, flexible, efficient and providing added value.

**Table 9.** Hypothesis Test Results 12

Hypothesis	Estimate	P- Value	Conclusion
Model 1			
Supply Chain Integration affects Supply Chain Performance	0.657	0.000	There is a positive influence
Model 2			
Supply Chain Integration affects Service Reliability	0.701	0.000	Condition a fulfilled (sig.)
Service Reliability affects Supply Chain Performance	0.381	0.001	Condition b is fulfilled (sig.)
Supply Chain Integration affects Supply Chain Performance	0,363	0.006	Condition c fulfilled (Full mediation)

Source: AMOS data processing results version 24

Based on table 9, the twelfth hypothesis indicates *service reliability* is capable of mediating supply chain integration and supply chain performance with an estimate of 0.363. The conclusion that can be drawn from the results of the hypothesis test that  $H_0$  was rejected and  $H_a$  accepted and statistically with a confidence level of 95% Supply Chain Integration affect Supply Chain Performance (KRP) through *Service Reliability*.

This explains that SMEs have implemented good supply chain integration such as contacts, communications and systems that are in accordance with their suppliers so as to improve the performance of the SME supply chain in coordination with suppliers, consumers, increased sales, more accurate calculations by applying *service reliability* in offering accurate information, shipping security, advertising scheduling.

**Table 10.** Hypothesis Test Results 13

Hypothesis	Estimate	P- Value	Conclusion
Model 1			
Supply Chain Integration affects Supply Chain Performance	0.657	0.000	There is a positive influence
Model 2			
Supply Chain Integration affects Service Flexibility	0.534	0.000	Condition a fulfilled (sig.)
Service Flexibility affects Supply Chain Performance	0.221	0.008	Condition b is fulfilled (sig.)
Supply Chain Integration affects Supply Chain Performance	0,517	0.000	Condition c fulfilled (Full mediation)

Source: AMOS data processing results version 24

Based on table 10, the thirteenth hypothesis indicates *service flexibility* is capable of mediation supply chain integration and supply chain performance with an estimate of 0.517. The conclusion that can be drawn from the results of the hypothesis test that Ho was rejected and Ha accepted and statistically with a confidence level of 95% there is an influence of Supply Chain Integration on Supply Chain Performance (KRP) through *Service Flexibility*.

This explains that SMEs have implemented good supply chain integration like contacts, communication and systems that are in accordance with their suppliers so as to enhance the performance of the SME supply chain in coordination with suppliers, consumers, increased sales, more accurate calculations by applying *Service Flexibility* in offering varied delivery services, meeting consumer demand, good response and easily adjusting to market changes.

**Table 11.** Hypothesis Test Results 14

Hypothesis	Estimate	P- Value	Conclusion
Model 1			
Supply Chain Integration affects Supply Chain Performance	0.657	0.000	There is a positive influence
Model 2			
Supply Chain Integration affects Service Efficiency	0.434	0.000	Condition a fulfilled (sig.)
Supply Chain Integration affects Supply Chain Performance	0.367	0.000	Condition b is fulfilled (sig.)
Supply Chain Integration affects Supply Chain Performance	0.507	0.000	Condition c not fulfilled (Partial mediation)

Source: AMOS data processing results version 24

Based table 11 The fourteenth hypothesis shows that service *efficiency* is capable of mediation supply chain integration and supply chain performance with an estimate of 0.507. The conclusion that can be drawn from the results of the hypothesis test that Ho was rejected and Ha accepted and statistically with a confidence level of 95% Supply Chain Integration affect Supply Chain Performance (KRP) through *Service Efficiency*.

This explains that SMEs have integrated their supply chains well such as contacts, communications and systems that are in accordance with their suppliers so as to enhance the performance of the SME supply chain in coordination with suppliers, consumers, increased sales, more accurate calculations by applying *Service Efficiency* in meeting production standards, on-time delivery, shorter waiting times.

**Table 12.** Hypothesis Test Results 15

Hypothesis		Estimate	P- Value	Conclusion
Model 1				
Supply Chain Integration	affects Supply Chain Performance	0.657	0.000	There is a positive influence
Model 2				
Supply Chain Integration	affects Value Added	0.664	0.000	Condition a fulfilled (sig.)
Value added	affects Supply Chain Performance	0.187	0.016	Condition b is fulfilled (sig.)
Supply Chain Integration	affects Supply Chain Performance	0,511	0.000	Condition c not fulfilled (Partial mediation)

Source: AMOS data processing results version 24

Based on table 12, the fifteenth hypothesis indicates *value added* is capable of mediating supply chain integration and supply chain performance with an estimate of 0.511. The conclusion that can be drawn from the results of the hypothesis test that  $H_0$  was rejected and  $H_a$  accepted and statistically with a confidence level of 95% there is an influence of Supply Chain Integration on Supply Chain Performance (KRP) through *Value Added*.

This explains that SMEs have implemented good supply chain integration such as contacts, communication and systems that are in accordance with their suppliers so as to enhance the performance of the SME supply chain in coordination with suppliers, consumers, increased sales, more accurate calculations by providing *Value Added* in offering door-to-door services, stock (inventory), multimodal (more than two types of modes of transportation).

#### 4 Conclusions

This research aims to analyze the effect of Supply Chain Integration on Supply Chain Performance mediated by *Service Capabilities (Service Reliability, Service Flexibility Service Efficiency, Value Added)* in 250 SMEs in Jabodetabek sewilayah. Based on the previous discussion, therefore can be concluded as follows:

There is an influence of Supply Chain Integration on *Service Capabilities (Service Reliability, Service Flexibility Service Efficiency, Value Added)*. This explains that supply chain integration has been implemented that can have an effect on *Service Capabilities (Service Reliability, Service Flexibility Service Efficiency, Value Added)*. So the implementation of supply chain integration in SMEs can improve *Service Capabilities (Service Reliability, Service Flexibility Service Efficiency, Value Added)*.

There is an effect of *Service Capabilities (Service Reliability, Service Flexibility Service Efficiency, Value Added)* on Supply chain Performance. This explains that *Service Capabilities (Service Reliability, Service Flexibility Service Efficiency, Value Added)* have been implemented that can have an influence on Supply Chain Performance. So the implementation of *Service Capabilities (Service Reliability, Service Flexibility Service Efficiency, Value Added)* in SMEs can improve Supply Chain Performance.

There is an influence of Supply Chain Integration on Supply Chain Performance mediated by *Service Capabilities (Service Reliability, Service Flexibility Service Efficiency, Value Added)*. This explains that Supply Chain Integration has been implemented that can have an influence on Supply Chain Performance through *Service Capabilities (Service Reliability, Service Flexibility Service Efficiency, Value Added)*. So the role of *Service Capabilities*

(Service Reliability, Service Flexibility Service Efficiency, Value Added) in SMEs can enhance supply chain integration to Supply Chain Performance.

### **Managerial implications**

SMEs further enhance their supply chain integration by maintaining appropriate contacts, communication and information systems, participation in the marketing of their products so that service capabilities can be improved in reliability, flexibility, efficiency (efficiency) of services and providing value added. SMEs maintain *service capabilities* with reliability, flexibility, efficiency of service and provide value added so that the execution of the SME supply chain in coordination accompanied by suppliers, consumers, increased sales, more accurate calculations can be maintained.

SMEs maintain supply chain integration by maintaining appropriate contacts, communication and information systems, participation in product marketing so that SME supply chain performance in coordination with suppliers, consumers, increased sales, more accurate calculations can be maintained while maintaining *service capabilities* with reliability, flexibility, efficiency (efficiency) of services and providing value added.

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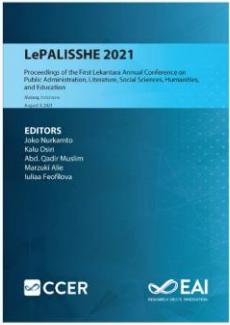
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1st Lekantara Annual Conference on Business, Economics and Innovation Management (LaBECS)  
Presenter's Letter of Acceptance

Date of issue: June, 26th 2021

Presenter's name: Dorina Widowati

Co-authors: Ratna Darasih (1), Nuzul Ramadhani (2)

Presentation Type: Video presentation

Presentation Title: Mediation Role of Service Capabilities in Supply Chain Integration on  
Supply Chain Performance in Small and Medium Enterprises

Institution Name: Universitas Trisakti

Reference Number: LaBECS – 055 – 3

Dear Mrs. Dorina Widowati

It is my pleasure to inform you that our Conference Committee has accepted your **ABSTRACT** for inclusion in the 1st Lekantara Annual Conference on Business, Economics and Innovation Management (LaBECS) being held virtually on July 1, 2021.

The deadline for submission of the full paper and video presentation is on August 1, 2021. Papers meeting the standards set forth by the Conference Proceedings Editorial Board will be published in our online Conference Proceedings.

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We are very much looking forward to your participation. If I can be of any further assistance, please do not hesitate to contact me by email at [lekantaraconference1@gmail.com](mailto:lekantaraconference1@gmail.com).

Regards,

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# MEDIATION ROLE OF SERVICE CAPABILITIES IN SUPPLY CHAIN INTEGRATION ON SUPPLY CHAIN PERFORMANCE IN SMALL AND MEDIUM ENTERPRISES

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## Abstract

The research objective is to analyze the effect of supply chain integration on supply chain performance mediated by service capabilities. Data samples were taken by 250 SME owners in the Jabodetabek (Jakarta, Bogor, Depok, Bekasi) area using Google forms. The data used is cross sectional and the approach used is Structured equation modeling.

The results of this study are Supply Integration has an effect on Service Capabilities (service reliability, service feasibility, service efficiency, added value), Service Capabilities (service reliability, service flexibility, service efficiency, added value) affect Supply Chain performance and Supply Chain Integration has an effect on supply chain performance mediated by Service Capabilities (service reliability, service ability, service efficiency, added value). In conclusion, in SMEs the role of Service Capabilities (service reliability, service flexibility, service efficiency, added value) in supply chain integration on chain performance supply is done.

Keywords: supply chain integration, service capabilities, supply chain performance, small and medium enterprises

## INTRODUCTION

In the current conditions, small and medium enterprises (SMEs) face competition with foreign companies in terms of price, quality, speed of product innovation. Another thing is that the Covid 19 Pandemic makes it worse, for that SMEs must have a competitive advantage in order to survive in the market, one of which is in terms of supply chain activities.

Supply Chain Management is a prominent field of science in giving companies to form a competitive advantage in the long term (1) Integrative organizational collaboration improves organizational performance (green et al., 2006; Tracey and Tan, 2001) and supply chain performance (Gunasekaran et al., 2004; Otto and Kotzab, 2003). Integration in the supply chain is required in improving supply chain performance.

Supply chain integration which is a collaboration strategy of both internal and external factors of the company which includes the support of managers, coordination between departments / sections, information technology, goal congruence, and communication collaboration will affect the performance of the supply chain.

The benefits of Supply Chain Integration must be applicable into service capabilities assessed by consumers such as service reliability (Lu, 2007), Service Flexibility (Rozenzweig et al., 2003; Holweg et al, 2005), Service Efficiency (Kogut and Zander, 2003), and Value Added Service (Notteboom, 2004; Wang and Cullinane, 2006) because this capability is able to develop a valuable and special superiority advantage (; Barney et al., 2001)

Research from (2), examines the role of supply chain integration in improving supply chain performance. Research (3), examined that supply chain integration is applied in service capabilities because these capabilities are able to develop a valuable competitive advantage.

## LITERATURE REVIEW

### *Supply Chain Integration*

Supply Chain Integration is a strategic alliance with supply chain partners. The organization's internal and external collaborative management processes establish and maintain a seamless channel for the timely movement of materials, finished goods, information, decisions and services to end consumers. (4,5) Supply chain integration

requires strategic relationships with supplier chain partners (6). In particular, supply chain integration involves collaboration between focus firms and their customers and suppliers in managing business boundary expansion activities, including collaboration in purchasing, planning and forecasting and joint product development (7). Supply chain integration is the company's ability to manage both intra and inter-organization to achieve efficient flow of products, services, information and money (8). This refers to the company's expertise in strategically collaborating with its supplier partners and co-operatives in managing processes to manage maximum value to customers at minimal cost (9), according to (10) the most important goal of Supply Chain Integration is to obtain effective and efficient transfer of products, services, information, money, and decisions through coordinated efforts, and the exchange of information with the aim of providing the best value to consumers at a low cost without hindrance.

Supply Chain integration in the company is very important to build mutual trust with other companies, can focus more on managing relationships and more easily get the information needed both from inside and outside the company.

#### *Service Capabilities*

Supply chain service capabilities are the result of a combination of the attempt of entire external and internal partners of the supply chain that refers to the capability of the whole supply chain to recognize, utilize and comprehend resources, skills and accumulated internal and external knowledge of the organization to facilitate and add value to all supply chain service activities more efficiently, flexibly and reliably. (4,5)

The Supply Chain Capabilities Service results from the synergy of entire external and internal partners of the supply chain and refers to the capability of the whole supply chain to recognize, utilize, and comprehend the two extra and intra-organizational assets, expertise, and assembled knowledge to ease and add value to be efficient, flexible and reliable in all supply chain service activities. We propose that a highly integrated supply chain makes it possible to build different services capabilities (capabilities) in four areas of the supply chain: Service Reliability (Reliability of services), Service Flexibility (Service Flexibility), Service Efficiency (Service Efficiency), and Value Added (Value Added). Companies that implement integration on the supply chain and utilize it to create Service Capabilities supply chain that represent a high level of organizational capability. (3).

#### *Supply Chain Performance*

Supply Chain Performance is a process to see how effective and efficient a systematic supply chain activity is. (Anand and Grover, 2015).

Companies and suppliers involved in supplying raw materials and equipment, producing goods, or delivering them to end customers are a physical network of supply chain performance (11). Zaroni (2017) stated that increasing competitive advantage through the efficiency of distribution and production costs and the accuracy of product quality to the end customer is an effective and efficient supply chain performance. Supply chain performance has the goal of maximizing value to end customers (12). Good supply chain performance will create more targeted companies and good profits for suppliers, agents, and end customers (13). In the performance of the supply chain the priority is to maintain the quality and timeliness of delivery, which is important because it concerns consumer confidence (14). (15) emphasized that those involved in the performance of the supply chain which is a company with similar interests, namely: Suppliers, Manufactures, Distribution, Retail Outlet, Customers.

According to Veera and Chandran (2016), indicators of supply chain performance measurement are accuracy of financing, the coordination of parts, suppliers, monsumen and increased sales. If a company's supply chain performance is effective and efficient compared to other companies it will be a source of competitive advantage for the company (16).

#### *Understanding MSMEs/SME*

MSMEs (Micro, Small and Medium Enterprises) According to Law no. 20 of 2008: Micro-enterprises are individual-owned businesses and/or individual productive business entities in accordance with the requirements of Micro-enterprises as regulated in this Law. Maximum turnover of IDR 300 million per year and Maximum assets owned IDR 50 million (excluding land and buildings of business premises). Small Business is a stand-alone productive economic venture, conducted by individuals or business entities that are not subsidiaries or are not branches of companies owned, controlled, or become part of either directly or indirectly from Medium Enterprises or Large Businesses that meet the criteria of Small Businesses as referred to in this Law. maximum turnover of more than IDR 300 million - IDR 2.5 billion per year and Assets of more than IDR 50 million - IDR 500 million (excluding land and buildings for business)

### CONCEPTUAL FRAMEWORK

Supply chain integration which is a collaboration strategy of both internal and external factors of the company which includes the support of top managers, coordination between departments / parts, information technology, goal congruence, and communication collaboration will affect the performance of the supply chain.

The benefits of Supply Chain Integration must be applicable into service capabilities assessed by consumers such as service reliability (Lu, 2007), Service Flexibility (Rozenzweig et al., 2003; Holweg et al, 2005), Service Efficiency (Kogut and Zander, 2003), and Value Added Service (Notteboom, 2004; Wang and Cullinane, 2006) because this capability is able to develop a valuable and special superiority advantage (Barney et al., 2001). For that can be made conceptual framework image as follows:

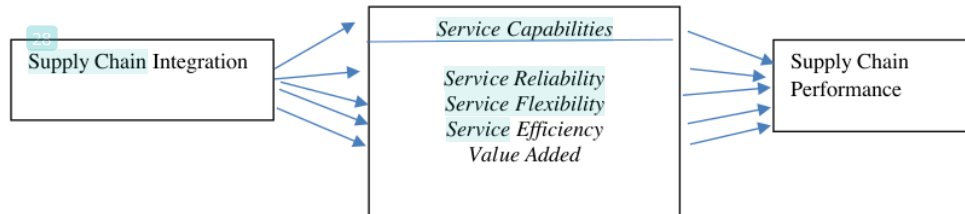


Figure 1. Conceptual Framework

### DEVELOPMENT OF HYPOTHESES

Previous research (Bagchi and Skjoett-Larsen, 2005; Fabbre Costes and Jahre, 2007,2008; Horvaerth, 2001; Wisner, 2003; Kim, 2006; Power,2005) concluded that the success of a company and its supply chain depends on its supply chain integration. . But despite its importance, supply chain integration is only newly researched (4). the most intensive level of strategic Alliance is Supply Chain Integration (Simchi-Levi et al, 2003; Kim, 2006). increased value of goods and services, market entry, strong operations, technological and enterprise skills caused by strategic alliances (Simchi-Levi et al. , 2003). Therefore it is possible that supply chain integration may be related to service capabilities. Supply chain integration has been proposed to improve customer response in service capabilities, and barriers to functions or organizations are eliminated, thus leading to efficient relationships in service capabilities and strengthening the competitiveness of service capabilities. Stevens, 1990). From the literature above, the following hypothesis can be drawn:

- Hypothesis 1: Supply chain integration affects service capabilities
- Hypothesis 2: Supply chain integration affects service reliability
- Hypothesis 3: Supply chain integration affects service flexibility
- Hypothesis 4: Supply chain integration affects service efficiency
- Hypothesis 5: Supply chain integration affects value added

Previous research (Flynn and Flynn, 1999) conclude that the company's performance, both individually and/or with other capabilities, is due to a positive contribution from efficiency, reliability, and flexibility . the competitive capability of manufacturing strategies from conventional policies results in increased company survival and growth. I. (Rosenzweig et al, 2003). Achieving customer satisfaction is related to Competitive Ability, Marketing performance (Kim, 2006), and general performance. From the literature above, the following hypothesis can be drawn:

- Hypothesis 6: Service Capabilities affect supply chain performance
- Hypothesis 7: Service Reliability affects Supply Chain Performance
- Hypothesis 8: Service Flexibility affects Supply Chain Performance
- Hypothesis 9: Service Efficiency affects Supply Chain Performance
- Hypothesis 10: Value added affects Supply Chain Performance

Supply Chain Management is a prominent field of science in giving companies to form a competitive advantage in the long run (Azadi et al., 2014). Integrative organizational collaboration improves organizational performance (green et al., 2006; Tracey and Tan, 2001) and supply chain performance (Gunasekaran et al., 2004; Otto and Kotzab, 2003). Integration in the supply chain is necessary in improving supply chain performance. Supply chain integration which is a collaboration strategy of both internal and external factors of the company which includes support of pucak manajaer, coordination between departments / parts, information technology, goal congruence, and communication collaboration will affect the performance of the supply chain.

The benefits of Supply Chain Integration should be applicable into service capabilities assessed by consumers such as service reliability (Lu, 2007), Service Flexibility (Rozenzweig et al., 2003; Holweg et al, 2005), Service



*Efficiency* (Kogut and Zander, 2003), and *Value Added Service* (notteboom, 2004; Wang and Cullinane, 2006) because this capability is able to develop a valuable and special superiority advantage (Barney et al., 2001) From the literature above it can be drawn the following hypothesis:

- Hypothesis 11: Supply chain integration affects supply chain performance through service *capabilities*
- Hypothesis 12: Supply chain integration affects supply chain performance through service *reliability*
- Hypothesis 13: Supply chain integration affects supply chain performance through service *flexibility*
- Hypothesis 14: Supply chain integration affects supply chain performance through service *efficiency*
- Hypothesis 15: Supply chain integration affects supply chain performance through *Value added*

#### RESEARCH METHODOLOGY

This study refers to previous research conducted by Veera Pandiyan Kaliani Sundram, V.G.R. Chandran, and Muhammad Awais Bhatti (2016), (3). Based on the purpose of the design research used in this study is the testing of hypotheses that have the goal of explaining certain relationships, establishing differences between groups of two or more factors in the situation (17). The hypothesis test was conducted to check the effect of Supply Chain Integration on Supply Chain Performance through Service Capabilities on SMEs.

The data that will be used in this study is *cross sectional data* because data collection is done by doing one collection with a daily, weekly, monthly period in answering research questions (17). In this study, the analysis unit was addressed to individuals, namely SME owners in the Jabodetabek region by spreading questionnaires as many as 250 SMEs.

In this study, the three variables were measured using the Interval Scale, which is used to give numbers, have levels, and have distances. The type of interval scale used in this study is the *Likert* scale, which uses 5 scales namely:

- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Simply Agree
- 4 = Agree
- 5 = Very Agree

Table 1  
Validity Test Results on Supply Chain Integration Variables

Indicators	Loading Factor Value	Decision
In the supply chain, SMEs often make contact with each other.	.587	Valid
In supply, SMEs often make contact with each other.	.739	Valid
SMEs extend their supply chains beyond existing consumers/suppliers.	.697	Valid
SMEs participate in marketing efforts to their consumers	.494	Valid

Source: Data Processing Results Using Amos version 24

**Table 2**  
Validity Test Results on *Service Capabilities* Variables

Indicators	Loading Factor Value	Decision
SMEs and suppliers offer reliability by providing booking space	.471	Valid
SMEs and suppliers offer reliability by scheduling advertising	.659	Valid
SMEs and suppliers offer accurate documentation	.703	Valid
SMEs and suppliers offer shipping security	.581	Valid
SMEs and suppliers offer varied delivery services	.588	Valid
SMEs and suppliers are more flexible in meeting different consumer needs	.671	Valid
SMEs and suppliers have a good response to consumers	.612	Valid
SMEs and suppliers are able to make adjustments in relation to addressing market changes	.472	Valid
SMEs and suppliers better meet approvals for cost per unit	.496	Valid
SMEs and suppliers meet productivity standards, better	.685	Valid
SMEs and suppliers meet timely delivery of needs, better	.689	Valid
SMEs and suppliers have a need for shorter waiting times	.527	Valid
SMEs and suppliers have the ability to provide warehouse services	.673	Valid
SMEs and suppliers have the ability to provide customs service permits	.688	Valid
SMEs and suppliers have the ability to provide multi-modal services	.699	Valid
SMEs and suppliers own the ability to provide stump services	.521	Valid

Source: Data Processing Results Using Amos version 24

**Table 3**  
Validity Test Results on Supply Chain Performance Variables

Indicators	Loading Factor Value	Decision
Accuracy of financing	.556	Valid
Increased coordination between parts	.647	Valid
Increased coordination between suppliers	.755	Valid
Increased coordination between consumers	.764	Valid
Increased sales	.675	Valid

Source: Data Processing Results Using Amos version 24

In tables 1, 2 and 3 show that all variable statement items of Supply Chain *Integration*, *Service Capabilities* and Supply Chain Performance have a factor loading value of  $\geq 0.40$  which means each statement item used to measure those variables is declared precise and feasible so that these supply chain integration variables, service capabilities and Supply Chain Performance can be researched.

**Table 4**  
Reliability Test Results

No.	Variables/Dimensions	Cronbach's Alpha	Items	Information
1	Supply Chain Integration	.717	4	Reliable
2	Service Reliabilities	.713	4	Reliable
3	Service Flexibilities	.658	4	Reliable
4	Service Efficiencies	.699	4	Reliable
5	Value Added	.707	4	Reliable
6	Supply Chain Performance	.809	5	Reliable

Source: Data Processing Results Using Amos version 24

In table 4 above, *cronbach's Alpha* value is seen as a result of reliability tests of existing instruments in the variables of Supply Chain Integration, Service Capabilities and Supply Chain Performance. The results showed that all instruments present on each variable had a *Cronbach's Alpha* value greater than 0.6 which means all instruments used in the research variable are *reliable*.

**Table 5**  
**Goodness of Fit Model Test Results**

Kind Measurement	Measurement	Value	Recommended acceptance limits	Conclusion
<i>Absolute fit measures</i>	P- value	0.000	$\geq 0.05$	<i>Poor fit</i>
	ECVI	2.473	Close to Saturated value than independent (2,915)	<i>Goodness of fit</i>
	RMSEA	.058	$\leq 0.1$	<i>Goodness of fit</i>
<i>Incremental fit measures</i>	IFI	0.871	$\geq 0.90$ or close to 1	<i>Marginal fit</i>
	NFI	0.754	$\geq 0.90$ or close to 1	<i>Poor fit</i>
	TLI	0.856	$\geq 0.90$ or close to 1	<i>Marginal fit</i>
	CFI	0.869	$\geq 0.90$ or close to 1	<i>Marginal fit</i>
	RFI	0.729	$\geq 0.90$ or close to 1	<i>Poor fit</i>
<i>Parsimonious fit measure</i>	CMIN/DF	1,828	Lower limit 1, upper limit 5	<i>Goodness of fit</i>
	AIC	603.299	Close to Saturated value than independent (650,000)	<i>Goodness of fit</i>

Source: Data Processing Results Using Amos version 24

The results of the feasibility assessment of the above model with the approach of *Absolute Fit Measures* and *Parsimonious Fit Measures* resulted in the conclusion of goodness of fit. So the model test is said to be feasible to proceed to the next test which is hypothesis testing.

## RESULTS AND DISCUSSIONS

The test was conducted using *structural equation model* (SEM) analysis. Here are the results of hypothesis testing:

**Table 6**  
**Hypothesis Test Results 1-5**

Hypothesis	Estimate ( $\beta$ )	p-value	Decision
H1: Supply Chain Integration affects Service Capabilities	0,470	0,000	Ho rejected Ha accepted
H2: Supply Chain Integration affects Service Reliability.	0,701	0,000	Ho rejected Ha accepted
H3: Supply Chain Integration affects Service Flexibility.	0,534	0,000	Ho rejected Ha accepted



H4: Supply Chain Integration affects <i>Service Efficiency</i> .	0,434	0,000	Ho rejected Ha accepted
H 5: Supply Chain Integration affects <i>Value Added</i>	0,664	0,000	Ho rejected Ha accepted

Source: Data results (AMOS)

Based on table 6, hypothesis one shows a *p-value* of 0.000 smaller than 0.05 and a positive *estimate value* of 0.470. The conclusion that can be drawn from the results of the hypothesis test that Ho was rejected and Ha accepted and statistically with a 95% confidence level there is an influence on Supply Chain Integration on Service Capabilities. This explains that SMEs have integrated their supply chains well such as contacts, communication and systems that are in accordance with their suppliers so as to improve the Service Capabilities of SMEs in performing reliable, flexible, efficient and providing added value.

The second hypothesis shows a *p-value* of 0.000 smaller than 0.05 and an *estimate value* of 0.701. The conclusion that can be drawn from the results of the hypothesis test that Ho was rejected and Ha was accepted and statistically with a 95% confidence level there is an effect of supply chain integration on service reliability.

This explains that SMEs have implemented their supply chain integration well so as to improve service reliability in offering accurate information, shipping security, ad scheduling.

The third hypothesis shows a *p-value* of 0.000 smaller than 0.05 and a positive *estimate value* of 0.534. The conclusion that can be drawn from the results of the hypothesis test that Ho was rejected and Ha accepted and statistically with a 95% confidence level there is an effect of supply chain integration on service flexibility.

This explains that SMEs have integrated their supply chains well such as contacts, communication and systems that are in accordance with their suppliers so as to improve the Service Flexibility of SMEs in offering varied delivery services, meeting consumer demand, good response and easy to adjust to market changes.

The fourth hypothesis shows a *p-value* of 0.000 smaller than 0.05 and an *estimate value* of 0.434. The conclusion that can be drawn from the results of the hypothesis test that Ho was rejected and Ha was accepted and statistically with a confidence level of 95% there is an influence of supply chain integration on service efficiency.

This explains that SMEs have implemented their supply chain integration well so as to improve *Service Efficiency* in meeting production standards, on-time delivery, shorter waiting times.

The fifth hypothesis shows a *p-value* of 0.000 smaller than 0.05 and a positive *estimate value* of 0.664. The conclusion that can be drawn from the results of the hypothesis test that Ho was rejected and Ha accepted and statistically with a 95% confidence level there is an influence of supply chain integration on Value Added. This explains that SMEs have done their supply chain integration well such as contacts, communication and systems that are in accordance with their suppliers so as to increase the Value Added (Value Added) of SMEs in offering door-to-door services, stock (inventory), multimodal (more than two types of modes of transportation).

**Table 7**  
**Hypothesis Test Results 6-10**

Hypothesis	Estimate ( $\beta$ )	<i>p-value</i>	Decision
H6: <i>Service Capabilities</i> affect Supply Chain Performance	1,235	0,000	Ho rejected Ha accepted
H7: <i>Service Reliability</i> affect Supply Chain Performance	0,381	0,001	Ho rejected Ha accepted
H 8: <i>Service Flexibility</i> affect Supply Chain Performance	0,221	0,008	Ho rejected Ha accepted
H9: <i>Service Efficiency</i> affect Supply Chain Performance	0,367	0,000	Ho rejected Ha accepted
H 10: Value Added influence on supply chain performance	0,187	0,016	Ho rejected Ha accepted

Source: Data results (AMOS)

Based on table 7, the sixth hypothesis shows a *p-value* of 0.000 smaller than 0.05 and a positive *estimate value* of 1.235. The conclusion that can be drawn from the results of the hypothesis test that  $H_0$  was rejected and  $H_a$  accepted and statistically with a confidence level of 95% service capabilities affect supply chain performance. This explains that SMEs have done their *Service Capabilities* in performing reliable, flexible, efficient and provide added value so as to enhance the performance of the SME supply chain in coordination with suppliers, consumers, increased sales, more accurate calculations.

The seventh hypothesis shows a *p-value* of 0.001 smaller than 0.05 and a positive *estimate* value of 0.381. The conclusion that can be drawn from the results of the hypothesis test that  $H_0$  was rejected and  $H_a$  accepted and statistically with a confidence level of 95% *Service Reliability* affect supply chain performance.

This explains that SMEs have implemented *service reliability* in offering accurate information, shipping security, advertising scheduling so as to enhance the performance of the SME supply chain in coordination with suppliers, consumers, increased sales, more accurate calculations.

The eighth hypothesis shows a *p-value* of 0.008 smaller than 0.05 and an *estimate* value of 0.221. The conclusion that can be drawn from the results of the hypothesis test that  $H_0$  was rejected and  $H_a$  accepted and statistically with a confidence level of 95% *Service Flexibility* affect Supply Chain Performance.

This explains that SMEs have conducted *Service Flexibility* in offering varied delivery services, meeting consumer demand, good response and easy to adjust to market changes so as to enhance the performance of the SME supply chain in coordination with suppliers, consumers, increased sales, more accurate calculations.

The ninth hypothesis shows a *p-value* of 0.000 smaller than 0.05 and an *estimate value* of 0.367. The conclusion that can be drawn from the results of the hypothesis test that  $H_0$  was rejected and  $H_a$  accepted and statistically with a confidence level of 95% *Service Efficiency* affect Supply Chain Performance.

This explains that SMEs have implemented *Service Efficiency* in meeting production standards, timely delivery, shorter waiting times thus enhancing the performance of the SME supply chain in coordination with suppliers, consumers, increased sales, more accurate calculations.

The tenth hypothesis shows a *p-value* of 0.016 smaller than 0.05 and an *estimate* value of 0.187. The conclusion that can be drawn from the results of the hypothesis test that  $H_0$  was rejected and  $H_a$  accepted and statistically with a confidence level of 95% *Value Added* affect the Performance of the Supply chain.

This explains that SMEs have done *Value Added* in offering door-to-door, stock (inventory), multimodal (more than two types of modes of transportation) thus enhancing the performance of the SME supply chain in coordination with suppliers, consumers, increased sales, more accurate calculations.

Based on Baron and Kenny's stages, *Service Capabilities* can be a mediation variable if the following conditions are met:

**Table 8. Hypothesis Test Results 11**

Hypothesis	Estimate	P- Value	Conclusion
Model 1			
Supply Chain Integration affects Supply Chain Performance	0.657	0.000	There is a positive influence
Model 2			
Supply Chain Integration affects Service capabilities	0.470	0.000	Condition a fulfilled (sig.)
Service capabilities affects Supply Chain Performance	1.235	0.000	Condition b is fulfilled (sig.)
Supply Chain Integration affects Supply Chain Performance	0,611	0.000	Condition c not fulfilled (Partial mediation)

Source: AMOS data processing results version 24

Based on table 8, hypothesis eleven indicates service capabilities are capable of mediating supply chain integration and supply chain performance with an estimated value of 0.611. The conclusion that can be drawn from the results of the hypothesis test that  $H_0$  was rejected and  $H_a$  was accepted and statistically with a confidence level of 95% Supply Chain Integration affects Supply Chain Performance through *service capabilities*.

This explains that SMEs have integrated their supply chains well such as contacts, communication and systems that are in accordance with their suppliers so as to enhance the performance of the SME supply chain in coordination with suppliers, consumers, increased sales, more accurate calculations by performing *Service Capabilities* in the form of performing reliable, flexible, efficient and providing added value.

**Table 9. Hypothesis Test Results 12**

Hypothesis	Estimate	P- Value	Conclusion
Model 1			
Supply Chain Integration affects Supply Chain Performance	0.657	0.000	There is a positive influence
Model 2			
Supply Chain Integration affects Service Reliability	0.701	0.000	Condition a fulfilled (sig.)
Service Reliability affects Supply Chain Performance	0.381	0.001	Condition b is fulfilled (sig.)
Supply Chain Integration affects Supply Chain Performance	0,363	0.006	Condition c fulfilled (Full mediation)

Source: AMOS data processing results version 24

Based on table 9, the twelfth hypothesis indicates *service reliability* is capable of mediating supply chain integration and supply chain performance with an estimate of 0.363. The conclusion that can be drawn from the results of the hypothesis test that  $H_0$  was rejected and  $H_a$  accepted and statistically with a confidence level of 95% Supply Chain Integration affect Supply Chain Performance (KRP) through Service Reliability.

This explains that SMEs have implemented good supply chain integration such as contacts, communications and systems that are in accordance with their suppliers so as to improve the performance of the SME supply chain in coordination with suppliers, consumers, increased sales, more accurate calculations by applying *service reliability* in offering accurate information, shipping security, advertising scheduling.

**Table 10. Hypothesis Test Results 13**

Hypothesis	Estimate	P- Value	Conclusion
Model 1			
Supply Chain Integration affects Supply Chain Performance	0.657	0.000	There is a positive influence
Model 2			
Supply Chain Integration affects Service Flexibility	0.534	0.000	Condition a fulfilled (sig.)
Service Flexibility affects Supply Chain Performance	0.221	0.008	Condition b is fulfilled (sig.)
Supply Chain Integration affects Supply Chain Performance	0,517	0.000	Condition c fulfilled (Full mediation)

Source: AMOS data processing results version 24

Based on table 10, the thirteenth hypothesis indicates *service flexibility* is capable of mediating supply chain integration and supply chain performance with an estimate of 0.517. The conclusion that can be drawn from the results of the hypothesis test that  $H_0$  was rejected and  $H_a$  accepted and statistically with a confidence level of 95% there is an influence of Supply Chain Integration on Supply Chain Performance (KRP) through Service Flexibility.

This explains that SMEs have implemented good supply chain integration like contacts, communication and systems that are in accordance with their suppliers so as to enhance the performance of the SME supply chain in coordination with suppliers, consumers, increased sales, more accurate calculations by applying *Service Flexibility* in offering varied delivery services, meeting consumer demand, good response and easily adjusting to market changes.

**Table 11. Hypothesis Test Results 14**

Hypothesis	Estimate	P- Value	Conclusion
Model 1			
Supply Chain Integration affects Supply Chain Performance	0.657	0.000	There is a positive influence
Model 2			
Supply Chain Integration affects Service Efficiency	0.434	0.000	Condition a fulfilled (sig.)
Supply Chain Integration affects Supply Chain Performance	0.367	0.000	Condition b is fulfilled (sig.)
Supply Chain Integration affects Supply Chain Performance	0,507	0.000	Condition c not fulfilled (Partial mediation)

Source: AMOS data processing results version 24

Based table 11 The fourteenth hypothesis shows that service *efficiency* is capable of mediation supply chain integration and supply chain performance with an estimate of 0.507. The conclusion that can be drawn from the results of the hypothesis test that Ho was rejected and Ha accepted and statistically with a confidence level of 95% Supply Chain Integration affect Supply Chain Performance (KRP) through *Service Efficiency*. This explains that SMEs have integrated their supply chains well such as contacts, communications and systems that are in accordance with their suppliers so as to enhance the performance of the SME supply chain in coordination with suppliers, consumers, increased sales, more accurate calculations by applying *Service Efficiency* in meeting production standards, on-time delivery, shorter waiting times.

**Table 12. Hypothesis Test Results 15**

Hypothesis	Estimate	P- Value	Conclusion
Model 1			
Supply Chain Integration affects Supply Chain Performance	0.657	0.000	There is a positive influence
Model 2			
Supply Chain Integration affects Value Added	0.664	0.000	Condition a fulfilled (sig.)
Value added affects Supply Chain Performance	0.187	0.016	Condition b is fulfilled (sig.)
Supply Chain Integration affects Supply Chain Performance	0,511	0.000	Condition c not fulfilled (Partial mediation)

Source: AMOS data processing results version 24

Based on table 12, the fifteenth hypothesis indicates *value added* is capable of mediating supply chain integration and supply chain performance with an estimate of 0.511. The conclusion that can be drawn from the results of the hypothesis test that Ho was rejected and Ha accepted and statistically with a confidence level of 95% there is an influence of Supply Chain Integration on Supply Chain Performance (KRP) through *Value Added*. This explains that SMEs have implemented good supply chain integration such as contacts, communication and systems that are in accordance with their suppliers so as to enhance the performance of the SME supply chain in coordination with suppliers, consumers, increased sales, more accurate calculations by providing *Value Added* in offering door-to-door services, stock (inventory), multimodal (more than two types of modes of transportation).



## MANAGERIAL CONCLUSIONS AND IMPLICATIONS

### *Conclusion*

This research aims to analyze the effect of Supply Chain Integration on Supply Chain Performance mediated by *Service Capabilities (Service Reliability, Service Flexibility Service Efficiency, Value Added)* in 250 SMEs in Jabodetabek sewilayah. Based on the previous discussion, therefore can be concluded as follows:

There is an influence of Supply Chain Integration on *Service Capabilities (Service Reliability, Service Flexibility Service Efficiency, Value Added)*. This explains that supply chain integration has been implemented that can have an effect on *Service Capabilities (Service Reliability, Service Flexibility Service Efficiency, Value Added)*. So the implementation of supply chain integration in SMEs can improve *Service Capabilities (Service Reliability, Service Flexibility Service Efficiency, Value Added)*.

There is an effect of *Service Capabilities (Service Reliability, Service Flexibility Service Efficiency, Value Added)* on Supply chain Performance. This explains that *Service Capabilities (Service Reliability, Service Flexibility Service Efficiency, Value Added)* have been implemented that can have an influence on Supply Chain Performance. So the implementation of *Service Capabilities (Service Reliability, Service Flexibility Service Efficiency, Value Added)* in SMEs can improve Supply Chain Performance.

There is an influence of Supply Chain Integration on Supply Chain Performance mediated by *Service Capabilities (Service Reliability, Service Flexibility Service Efficiency, Value Added)*. This explains that Supply Chain Integration has been implemented that can have an influence on Supply Chain Performance through *Service Capabilities (Service Reliability, Service Flexibility Service Efficiency, Value Added)*. So the role of *Service Capabilities (Service Reliability, Service Flexibility Service Efficiency, Value Added)* in SMEs can enhance supply chain integration to Supply Chain Performance.

### *Managerial implications*

SMEs further enhance their supply chain integration by maintaining appropriate contacts, communication and information systems, participation in the marketing of their products so that service capabilities can be improved in reliability, flexibility, efficiency (efficiency) of services and providing value added.

SMEs maintain *service capabilities* with reliability, flexibility, efficiency of service and provide value added so that the execution of the SME supply chain in coordination accompanied by suppliers, consumers, increased sales, more accurate calculations can be maintained.

SMEs maintain supply chain integration by maintaining appropriate contacts, communication and information systems, participation in product marketing so that SME supply chain performance in coordination with suppliers, consumers, increased sales, more accurate calculations can be maintained while maintaining *service capabilities* with reliability, flexibility, efficiency (efficiency) of services and providing value added.

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# Mediation Role of Service Capabilities in Supply Chain Integration on Supply Chain Performance in Small and Medium Enterprises

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**Abstract.** The research objective is to analyze the effect of supply chain integration on supply chain performance mediated by service capabilities. Data samples were taken by 250 SME owners in the Jabodetabek (Jakarta, Bogor, Depok, Bekasi) area using Google forms. The data used is cross sectional and the approach used is structured equation modeling. The results of this study are Supply Integration has an effect on Service Capabilities (service reliability, service feasibility, service efficiency, added value), Service Capabilities (service reliability, service flexibility, service efficiency, added value) affect Supply Chain performance and Supply Chain Integration has an effect on supply chain performance mediated by Service Capabilities (service reliability, service ability, service efficiency, added value). In conclusion, in SMEs the role of Service Capabilities (service reliability, service flexibility, service efficiency, added value) in supply chain integration on chain performance supply is done.

**Keywords:** Supply Chain Integration; Service Capabilities; Supply Chain Performance; Small and Medium Enterprises

## 1 Introduction

In the current conditions, small and medium enterprises (SMEs) face competition with foreign companies in terms of price, quality, speed of product innovation. Another thing is that the Covid 19 Pandemic makes it worse, for that SMEs must have a competitive advantage in order to survive in the market, one of which is in terms of supply chain activities. Supply Chain Management is a prominent field of science in giving companies to form a competitive advantage in the long term [1] Integrative organizational collaboration improves organizational performance (green et al., 2006; Tracey and Tan, 2001) and supply chain performance (Gunasekaran et al., 2004; Otto and Kotzab, 2003). Integration in the supply chain is required in improving supply chain performance.

Supply chain integration which is a collaboration strategy of both internal and external factors of the company which includes the support of managers, coordination between departments / sections, information technology, goal congruence, and communication collaboration will affect the performance of the supply chain. The benefits of Supply Chain Integration must be applicable into service capabilities assessed by consumers such as service

reliability (Lu, 2007), Service Flexibility (Rozenzweig et al., 2003; Holweg et al, 2005), Service Efficiency (Kogut and Zander, 2003), and Value Added Service (notteboom, 2004; Wang and Cullinane, 2006) because this capability is able to develop a valuable and special superiority advantage (Barney et al., 2001). Research from [2], examines the role of supply chain integration in improving supply chain performance. Research [3], examined that supply chain integration is applied in service capabilities because these capabilities are able to develop a valuable competitive advantage.

## 2 Literature Review

### 2.1 Supply Chain Integration

Supply Chain Integration is a strategic alliance with supply chain partners. The organization's internal and external collaborative management processes establish and maintain a seamless channel for the timely movement of materials, finished goods, information, decisions and services to end consumers. [4], [5] Supply chain integration requires strategic relationships with supplier chain partners [6]. In particular, supply chain integration involves collaboration between focus firms and their customers and suppliers in managing business boundary expansion activities, including collaboration in purchasing, planning and forecasting and joint product development [7].

Supply chain integration is the company's ability to manage both intra and inter-organization to achieve efficient flow of products, services, information and money [8]. This refers to the company's expertise in strategically collaborating with its supplier partners and co-operatives in managing processes to manage maximum value to customers at minimal cost [9], according to [10] the most important goal of Supply Chain Integration is to obtain effective and efficient transfer of products, services, information, money, and decisions through coordinated efforts, and the exchange of information with the aim of providing the best value to consumers at a low cost without hindrance. Supply Chain integration in the company is very important to build mutual trust with other companies, can focus more on managing relationships and more easily get the information needed both from inside and outside the company.

### 2.2 Service Capabilities

*Supply chain service capabilities* are the result of a combination of the attempt of entire external and internal partners of the supply chain that refers to the capability of the whole supply chain to recognize, utilize and comprehend resources, skills and accumulated internal and external knowledge of the organization to facilitate and add value to all supply chain service activities more efficiently, flexibly and reliably. [4], [5]

The Supply Chain *Capabilities Service* results from the synergy of entire external and internal partners of the supply chain and refers to the capability of the whole supply chain to recognize, utilize, and comprehend the two extra and intra-organizational assets, expertise, and assembled knowledge to ease and add value to be efficient, flexible and reliable in all supply chain service activities. We propose that a highly integrated supply chain makes it possible to build different services capabilities (capabilities) in four areas of the supply chain: *Service Reliability* (Reliability of services), *Service Flexibility* (Service Flexibility), *Service Efficiency* (Service Efficiency), and *Value Added* (ValueAdded). Companies that implement



integration on the supply chain and utilize it to create *Service Capabilities* supply chain that represent a high level of organizational capability. [3].

### 2.3 Supply Chain Performance

Supply Chain Performance is a process to see how effective and efficient a systematic supply chain activity (Anand and Grover, 2015). Companies and suppliers involved in supplying raw materials and equipment, producing goods, or delivering them to end customers are a physical network of supply chain performance [11]. Zaroni (2017) stated that increasing competitive advantage through the efficiency of distribution and production costs and the accuracy of product quality to the end customer is an effective and efficient supply chain performance. Supply chain performance has the goal of maximizing value to end customers [12]. Good supply chain performance will create more targeted companies and good profits for suppliers, agents, and end customers [13]. In the performance of the supply chain the priority is to maintain the quality and timeliness of delivery, which is important because it concerns consumer confidence [14]. [15] emphasized that those involved in the performance of the supply chain which is a company with similar interests, namely: *Suppliers, Manufacturers, Distribution, Retail Outlet, Customers*.

According to Veera and Chandran (2016), indicators of supply chain performance measurement are accuracy of financing, the coordination of parts, suppliers, monumen and increased sales. If a company's supply chain performance is effective and efficient compared to other companies it will be a source of competitive advantage for the company [16].

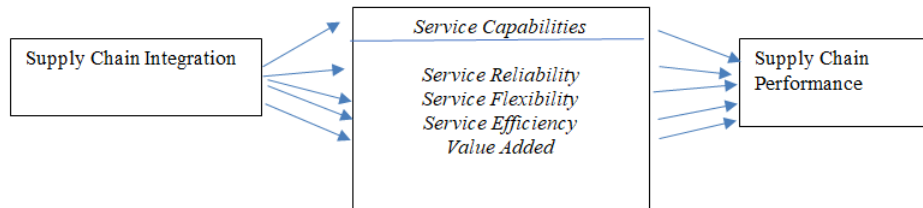
### 2.4 Understanding MSMEs/SME

MSMEs (Micro, Small and Medium Enterprises) According to Law no. 20 of 2008: Micro-enterprises are individual-owned businesses and/or individual productive business entities in accordance with the requirements of Micro-enterprises as regulated in this Law. Maximum turnover of IDR 300 million per year and Maximum assets owned IDR 50 million (excluding land and buildings of business premises). Small Business is a stand-alone productive economic venture, conducted by individuals or business entities that are not subsidiaries or are not branches of companies owned, controlled, or become part of either directly or indirectly from Medium Enterprises or Large Businesses that meet the criteria of Small Businesses as referred to in this Law. maximum turnover of more than IDR 300 million - IDR 2.5 billion per year and Assets of more than IDR 50 million - IDR 500 million (excluding land and buildings for business)

### 2.5 Conceptual Framework

Supply chain integration which is a collaboration strategy of both internal and external factors of the company which includes the support of top managers, coordination between departments / parts, information technology, goal congruence, and communication collaboration will affect the performance of the supply chain. The benefits of Supply Chain Integration must be applicable into service capabilities assessed by consumers such as service reliability (Lu, 2007), Service Flexibility (Rozenzweig et al., 2003; Holweg et al, 2005), Service Efficiency (Kogut and Zander, 2003), and Value Added Service (notteboom, 2004; Wang and Cullinane, 2006) because this capability is able to develop a valuable and special

superiority advantage (Barney et al., 2001). For that can be made conceptual framework image as follows:



**Fig. 1.** Conceptual Framework

## 2.6 Development of Hypotheses

Previous research (Bagchi and Skjoett-Larsen, 2005; Fabbie Costes and Jahre, 2007,2008; Horvaerth, 2001; Wisner, 2003; Kim, 2006; Power, 2005) concluded that the success of a company and its supply chain depends on its supply chain integration. . But despite its importance, supply chain integration is only newly researched [4]. the most intensive level of strategic Alliance is Supply Chain Integration (Simchi-Levi et al, 2003; Kim, 2006). increased value of goods and services, market entry, strong operations, technological and enterprise skills caused by strategic alliances (Simchi-Levi et al. , 2003). Therefore it is possible that supply chain integration may be related to *service capabilities*. Supply chain integration has been proposed to improve customer response in *service capabilities*, and barriers to functions or organizations are eliminated, thus leading to efficient relationships in *service capabilities* and strengthening the competitiveness of *service capabilities*. Stevens, 1990). From the literature above, the following hypothesis can be drawn:

- a. Hypothesis 1: Supply chain integration affects service capabilities
- b. Hypothesis 2: Supply chain integration affects service reliability
- c. Hypothesis 3: Supply chain integration affects service flexibility
- d. Hypothesis 4: Supply chain integration affects service efficiency
- e. Hypothesis 5: Supply chain integration affects value added

Previous research (Flynn and Flynn, 1999) conclude that the company's performance, both individually and/or with other capabilities, is due to a positive contribution from efficiency, reliability, and flexibility . the competitive capability of manufacturing strategies from conventional policies results in increased company survival and growth. l. (Rosenzweig et al, 2003). Achieving customer satisfaction is related to Competitive Ability, Marketing performance (Kim, 2006), and general performance. From the literature above, the following hypothesis can be drawn:

- a. Hypothesis 6: *Service Capabilities* affect supply chain performance
- b. Hypothesis 7: *Service Reliability* affects Supply Chain Performance
- c. Hypothesis 8: *Service Flexibility* affects Supply Chain Performance
- d. Hypothesis 9: *Service Efficiency* affects Supply Chain Performance
- e. Hypothesis 10: *Value added* affects Supply Chain Performance

Supply Chain Management is a prominent field of science in giving companies to form a competitive advantage in the long run (Azadi et al., 2014). Integrative organizational collaboration improves organizational performance (green et al., 2006; Tracey and Tan, 2001) and supply chain performance (Gunasekaran et al., 2004; Otto and Kotzab, 2003). Integration in the supply chain is necessary in improving supply chain performance. Supply chain

integration which is a collaboration strategy of both internal and external factors of the company which includes support of pucak manajaer, coordination between departments / parts, information technology, *goal congruence*, and communication collaboration will affect the performance of the supply chain.

The benefits of Supply Chain Integration should be applicable into *service capabilities* assessed by consumers such as *service reliability* (Lu, 2007), *Service Flexibility* (Rozenzweig et al., 2003; Holweg et al, 2005), *Service Efficiency* (Kogut and Zander, 2003), and Value Added *Service* (notteboom, 2004; Wang and Cullinane, 2006) because this capability is able to develop a valuable and special superiority advantage (Barney et al., 2001) From the literature above it can be drawn the following hypothesis:

- a. Hypothesis 11: Supply chain integration affects supply chain performance through *service capabilities*
- b. Hypothesis 12: Supply chain integration affects supply chain performance through *service reliability*
- c. Hypothesis 13: Supply chain integration affects supply chain performance through *service flexibility*
- d. Hypothesis 14: Supply chain integration affects supply chain performance through *service efficiency*
- e. Hypothesis 15: Supply chain integration affects supply chain performance through *Value added*

## 2.7 Research Methodology

This study refers to previous research conducted by Veera Pandiyan Kaliani Sundram, V.G.R. Chandran, and Muhammad Awais Bhatti (2016), [3]. Based on the purpose of the design research used in this study is the testing of hypotheses that have the goal of explaining certain relationships, establishing differences between groups of two or more factors in the situation [17]. The hypothesis test was conducted to check the effect of Supply Chain Integration on Supply Chain Performance through *Service Capabilities* on SMEs.

The data that will be used in this study is *cross sectional* data because data collection is done by doing one collection with a daily, weekly, monthly period in answering research questions [17]. In this study, the analysis unit was addressed to individuals, namely SME owners in the Jabodetabek region by spreading questionnaires as many as 250 SMEs. In this study, the three variables were measured using the Interval Scale, which is used to give numbers, have levels, and have distances. The type of interval scale used in this study is the *Likert* scale, which uses 5 scales namely:

- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Simply Agree
- 4 = Agree
- 5 = Very Agree

**Table 1.** Validity Test Results on Supply Chain Integration Variables

Indicators	Loading Factor Value	Decision
In the supply chain, SMEs often make contact with each other.	.587	Valid
In supply, SMEs often make contact with each other.	.739	Valid
SMEs extend their supply chains beyond existing consumers/suppliers.	.697	Valid
SMEs participate in marketing efforts to their consumers	.494	Valid

Source: Data Processing Results Using Amos version 24

**Table 2.** Validity Test Results on *Service Capabilities* Variables

Indicators	Loading Factor Value	Decision
SMEs and suppliers offer reliability by providing booking space	.471	Valid
SMEs and suppliers offer reliability by scheduling advertising	.659	Valid
SMEs and suppliers offer accurate documentation	.703	Valid
SMEs and suppliers offer shipping security	.581	Valid
SMEs and suppliers offer varied delivery services	.588	Valid
SMEs and suppliers are more flexible in meeting different consumer needs	.671	Valid
SMEs and suppliers have a good response to consumers	.612	Valid
SMEs and suppliers are able to make adjustments in relation to addressing market changes	.472	Valid
SMEs and suppliers better meet approvals for cost per unit	.496	Valid
SMEs and suppliers meet productivity standards, better	.685	Valid
SMEs and suppliers meet timely delivery of needs, better	.689	Valid
SMEs and suppliers have a need for shorter waiting times	.527	Valid
SMEs and suppliers have the ability to provide warehouse services	.673	Valid
SMEs and suppliers have the ability to provide customs service permits	.688	Valid
SMEs and suppliers have the ability to provide multi-modal services	.699	Valid
SMEs and suppliers own the ability to provide stump services	.521	Valid

Source: Data Processing Results Using Amos version 24

**Table 3.** Validity Test Results on Supply Chain Performance Variables

Indicators	Loading Factor Value	Decision
Accuracy of financing	.556	Valid
Increased coordination between parts	.647	Valid
Increased coordination between suppliers	.755	Valid
Increased coordination between consumers	.764	Valid
Increased sales	.675	Valid

Source: Data Processing Results Using Amos version 24

In tables 1, 2 and 3 show that all variable statement items of Supply Chain *Integration*, *Service Capabilities* and Supply Chain Performance have a factor loading value of  $\geq 0.40$  which means each statement item used to measure those variables is declared precise and feasible so that these supply chain integration variables, service *capabilities* and Supply Chain Performance can be researched.

**Table 4.** Reliability Test Results

No.	Variables/Dimensions	Cronbach's Alpha	Items	Information
1	Supply Chain Integration	.717	4	Reliable
2	Service Reliabilities	.713	4	Reliable
3	Service Flexibilities	.658	4	Reliable
4	Service Efficiencies	.699	4	Reliable
5	Value Added	.707	4	Reliable
6	Supply Chain Performance	.809	5	Reliable

Source: Data Processing Results Using Amos version 24

In table 4 above, *cronbach's Alpha* value is seen as a result of reliability tests of existing instruments in the variables of Supply Chain Integration, Service Capabilities and Supply Chain Performance. The results showed that all instruments present on each variable had a *Cronbach's Alpha* value greater than 0.6 which means all instruments used in the research variable are *reliable*.

**Table 5. Goodness of Fit Model Test Results**

Kind Measurement	Measurement	Value	Recommended acceptance limits	Conclusion
Absolute fit measures	P- value	0.000	$\geq 0.05$	Poor fit
	ECVI	2.473	Close to Saturated value than independent (2,915)	Goodness of fit
	RMSEA	.058	$\leq 0.1$	Goodness of fit
Incremental fit measures	IFI	0.871	$\geq 0.90$ or close to 1	Marginal fit
	NFI	0.754	$\geq 0.90$ or close to 1	Poor fit
	TLI	0.856	$\geq 0.90$ or close to 1	Marginal fit
	CFI	0.869	$\geq 0.90$ or close to 1	Marginal fit
	RFI	0.729	$\geq 0.90$ or close to 1	Poor fit
Parsimonious fit measure	CMIN/DF	1,828	Lower limit 1, upper limit 5	Goodness of fit
	AIC	603.299	Close to Saturated value than independent (650,000)	Goodness of fit

Source: Data Processing Results Using Amos version 24

The results of the feasibility assessment of the above model with *the approach of Absolute Fit Measures* and *Parsimonious Fit Measures* resulted in the conclusion of goodness of fit. So the model test is said to be feasible to proceed to the next test which is hypothesis testing.

### 3 Results and Discussions

The test was conducted using *structural equation model* (SEM) analysis. Here are the results of hypothesis testing:

**Table 6. Hypothesis Test Results 1-5**

Hypothesis	Estimate ( $\beta$ )	p-value	Decision
H1: Supply Chain Integration affects Service Capabilities	0.470	0.000	Ho rejected
H2: Supply Chain Integration affects Service Reliability.			Ha accepted
H3: Supply Chain Integration affects Service Flexibility.	0.701	0.000	Ho rejected
H4: Supply Chain Integration affects Service Efficiency.			Ha accepted
H 5: Supply Chain Integration affects Value Added	0.534	0.000	Ho rejected
			Ha accepted
	0.434	0.000	Ho rejected
			Ha accepted
	0.664	0.000	Ho rejected
			Ha accepted

Source: Data results (AMOS)

Based on table 6, hypothesis one shows a *p-value* of 0.000 smaller than 0.05 and a positive *estimate* value of 0.470. The conclusion that can be drawn from the results of the hypothesis test that Ho was rejected and Ha accepted and statistically with a 95% confidence level there

is an influence on Supply Chain Integration on Service Capabilities. This explains that SMEs have integrated their supply chains well such as contacts, communication and systems that are in accordance with their suppliers so as to improve the Service Capabilities of SMEs in performing reliable, flexible, efficient and providing added value.

The second hypothesis shows a *p-value* of 0.000 smaller than 0.05 and an *estimate* value of 0.701. The conclusion that can be drawn from the results of the hypothesis test that Ho was rejected and Ha was accepted and statistically with a 95% confidence level there is an effect of supply chain integration on service reliability.

This explains that SMEs have implemented their supply chain integration well so as to improve service reliability in offering accurate information, shipping security, and scheduling.

The third hypothesis shows a *p-value* of 0.000 smaller than 0.05 and a positive *estimate* value of 0.534. The conclusion that can be drawn from the results of the hypothesis test that Ho was rejected and Ha accepted and statistically with a 95% confidence level there is an effect of supply chain integration on service flexibility.

This explains that SMEs have integrated their supply chains well such as contacts, communication and systems that are in accordance with their suppliers so as to improve the Service Flexibility of SMEs in offering varied delivery services, meeting consumer demand, good response and easy to adjust to market changes.

The fourth hypothesis shows a *p-value* of 0.000 smaller than 0.05 and an *estimate* value of 0.434. The conclusion that can be drawn from the results of the hypothesis test that Ho was rejected and Ha was accepted and statistically with a confidence level of 95% there is an influence of supply chain integration on service efficiency.

This explains that SMEs have implemented their supply chain integration well so as to improve *Service Efficiency* in meeting production standards, on-time delivery, shorter waiting times.

The fifth hypothesis shows a *p-value* of 0.000 smaller than 0.05 and a positive *estimate* value of 0.664. The conclusion that can be drawn from the results of the hypothesis test that Ho was rejected and Ha accepted and statistically with a 95% confidence level there is an influence of supply chain integration on Value Added. This explains that SMEs have done their supply chain integration well such as contacts, communication and systems that are in accordance with their suppliers so as to increase the Value Added (Value Added) of SMEs in offering door-to-door services, stock (inventory), multimodal (more than two types of modes of transportation).

**Table 7.** Hypothesis Test Results 6-10

Hypothesis	Estimate ( $\beta$ )	<i>p-value</i>	Decision
H6: <i>Service Capabilities</i> affect Supply Chain Performance	1.235	0.000	Ho rejected Ha accepted
H7: <i>Service Reliability</i> affect Supply Chain Performance	0.381	0.001	Ho rejected Ha accepted
H 8: <i>Service Flexibility</i> affect Supply Chain Performance	0.221	0.008	Ho rejected Ha accepted
H9: <i>Service Efficiency</i> affect Supply Chain Performance	0.367	0.000	Ho rejected Ha accepted
H 10: Value Added influence on supply chain performance	0.187	0.016	Ho rejected Ha accepted

Source: Data results (AMOS)

Based on table 7, the sixth hypothesis shows *p-value* of 0.000 smaller than 0.05 and a positive *estimate* value of 1.235. The conclusion that can be drawn from the results of the hypothesis test that  $H_0$  was rejected and  $H_a$  accepted and statistically with a confidence level of 95% service capabilities affect supply chain performance.

This explains that SMEs have done *their Service Capabilities* in performing reliable, flexible, efficient and provide added value so as to enhance the performance of the SME supply chain in coordination with suppliers, consumers, increased sales, more accurate calculations.

The seventh hypothesis shows a *p-value* of 0.001 smaller than 0.05 and a positive *estimate* value of 0.381. The conclusion that can be drawn from the results of the hypothesis test that  $H_0$  was rejected and  $H_a$  accepted and statistically with a confidence level of 95% Service *Reliability* affect supply chain performance.

This explains that SMEs have implemented *service reliability* in offering accurate information, shipping security, advertising scheduling so as to enhance the performance of the SME supply chain in coordination with suppliers, consumers, increased sales, more accurate calculations.

The eighth hypothesis shows a *p-value* of 0.008 smaller than 0.05 and an *estimate* value of 0.221. The conclusion that can be drawn from the results of the hypothesis test that  $H_0$  was rejected and  $H_a$  accepted and statistically with a confidence level of 95% Service *Flexibility* affect Supply Chain Performance.

This explains that SMEs have conducted Service Flexibility in offering varied delivery services, meeting consumer demand, good response and easy to adjust to market changes so as to enhance the performance of the SME supply chain in coordination with suppliers, consumers, increased sales, more accurate calculations.

The ninth hypothesis shows a *p-value* of 0.000 smaller than 0.05 and an *estimate* value of 0.367. The conclusion that can be drawn from the results of the hypothesis test that  $H_0$  was rejected and  $H_a$  accepted and statistically with a confidence level of 95% Service *Efficiency* affect Supply Chain Performance.

This explains that SMEs have implemented *Service Efficiency* in meeting production standards, timely delivery, shorter waiting times thus enhancing the performance of the SME supply chain in coordination with suppliers, consumers, increased sales, more accurate calculations.

The tenth hypothesis shows a *p-value* of 0.016 smaller than 0.05 and an *estimate* value of 0.187. The conclusion that can be drawn from the results of the hypothesis test that  $H_0$  was rejected and  $H_a$  accepted and statistically with a confidence level of 95% Value *Added* affect the Performance of the Supply chain.

This explains that SMEs have done *Value Added* in offering door-to-door, stock (inventory), multimodal (more than two types of modes of transportation) thus enhancing the performance of the SME supply chain in coordination with suppliers, consumers, increased sales, more accurate calculations.

Based on Baron and Kenny's stages, *Service Capabilities* can be a mediation variable if the following conditions are met:

**Table 8.** Hypothesis Test Results 11

Hypothesis	Estimate	P- Value	Conclusion
Model 1			
Supply Chain Integration affects Supply Chain Performance	0.657	0.000	There is a positive influence
Model 2			
Supply Chain Integration affects Service capabilities	0.470	0.000	Condition a fulfilled (sig.)
Service capabilities affects Supply Chain Performance	1.235	0.000	Condition b is fulfilled (sig.)
Supply Chain Integration affects Supply Chain Performance	0,611	0.000	Condition c not fulfilled (Partial mediation)

Source: AMOS data processing results version 24

Based on table 8, hypothesis eleven indicates service *capabilities* are capable of mediating supply chain integration and supply chain performance with an estimated value of 0.611. The conclusion that can be drawn from the results of the hypothesis test that  $H_0$  was rejected and  $H_a$  was accepted and statistically with a confidence level of 95% Supply Chain Integration affects Supply Chain Performance through *service capabilities*.

This explains that SMEs have integrated their supply chains well such as contacts, communication and systems that are in accordance with their suppliers so as to enhance the performance of the SME supply chain in coordination with suppliers, consumers, increased sales, more accurate calculations by performing *Service Capabilities* in the form of performing reliable, flexible, efficient and providing added value.

**Table 9.** Hypothesis Test Results 12

Hypothesis	Estimate	P- Value	Conclusion
Model 1			
Supply Chain Integration affects Supply Chain Performance	0.657	0.000	There is a positive influence
Model 2			
Supply Chain Integration affects Service Reliability	0.701	0.000	Condition a fulfilled (sig.)
Service Reliability affects Supply Chain Performance	0.381	0.001	Condition b is fulfilled (sig.)
Supply Chain Integration affects Supply Chain Performance	0,363	0.006	Condition c fulfilled (Full mediation)

Source: AMOS data processing results version 24

Based on table 9, the twelfth hypothesis indicates *service reliability* is capable of mediating supply chain integration and supply chain performance with an estimate of 0.363. The conclusion that can be drawn from the results of the hypothesis test that  $H_0$  was rejected and  $H_a$  accepted and statistically with a confidence level of 95% Supply Chain Integration affect Supply Chain Performance (KRP) through *Service Reliability*.

This explains that SMEs have implemented good supply chain integration such as contacts, communications and systems that are in accordance with their suppliers so as to improve the performance of the SME supply chain in coordination with suppliers, consumers, increased sales, more accurate calculations by applying *service reliability* in offering accurate information, shipping security, advertising scheduling.



**Table 10.** Hypothesis Test Results 13

Hypothesis	Estimate	P- Value	Conclusion
Model 1			
Supply Chain Integration affects Supply Chain Performance	0.657	0.000	There is a positive influence
Model 2			
Supply Chain Integration affects Service Flexibility	0.534	0.000	Condition a fulfilled (sig.)
Service Flexibility affects Supply Chain Performance	0.221	0.008	Condition b is fulfilled (sig.)
Supply Chain Integration affects Supply Chain Performance	0,517	0.000	Condition c fulfilled (Full mediation)

Source: AMOS data processing results version 24

Based on table 10, the thirteenth hypothesis indicates *service flexibility* is capable of mediation supply chain integration and supply chain performance with an estimate of 0.517. The conclusion that can be drawn from the results of the hypothesis test that Ho was rejected and Ha accepted and statistically with a confidence level of 95% there is an influence of Supply Chain Integration on Supply Chain Performance (KRP) through *Service Flexibility*.

This explains that SMEs have implemented good supply chain integration like contacts, communication and systems that are in accordance with their suppliers so as to enhance the performance of the SME supply chain in coordination with suppliers, consumers, increased sales, more accurate calculations by applying *Service Flexibility* in offering varied delivery services, meeting consumer demand, good response and easily adjusting to market changes.

**Table 11.** Hypothesis Test Results 14

Hypothesis	Estimate	P- Value	Conclusion
Model 1			
Supply Chain Integration affects Supply Chain Performance	0.657	0.000	There is a positive influence
Model 2			
Supply Chain Integration affects Service Efficiency	0.434	0.000	Condition a fulfilled (sig.)
Supply Chain Integration affects Supply Chain Performance	0.367	0.000	Condition b is fulfilled (sig.)
Supply Chain Integration affects Supply Chain Performance	0.507	0.000	Condition c not fulfilled (Partial mediation)

Source: AMOS data processing results version 24

Based table 11 The fourteenth hypothesis shows that service *efficiency* is capable of mediation supply chain integration and supply chain performance with an estimate of 0.507. The conclusion that can be drawn from the results of the hypothesis test that Ho was rejected and Ha accepted and statistically with a confidence level of 95% Supply Chain Integration affect Supply Chain Performance (KRP) through *Service Efficiency*.

This explains that SMEs have integrated their supply chains well such as contacts, communications and systems that are in accordance with their suppliers so as to enhance the performance of the SME supply chain in coordination with suppliers, consumers, increased sales, more accurate calculations by applying *Service Efficiency* in meeting production standards, on-time delivery, shorter waiting times.

**Table 12.** Hypothesis Test Results 15

Hypothesis	Estimate	P- Value	Conclusion
Model 1			
Supply Chain Integration affects Supply Chain Performance	0.657	0.000	There is a positive influence
Model 2			
Supply Chain Integration affects Value Added	0.664	0.000	Condition a fulfilled (sig.)
Value added affects Supply Chain Performance	0.187	0.016	Condition b is fulfilled (sig.)
Supply Chain Integration affects Supply Chain Performance	0,511	0.000	Condition c not fulfilled (Partial mediation)

Source: AMOS data processing results version 24

Based on table 12, the fifteenth hypothesis indicates *value added* is capable of mediating supply chain integration and supply chain performance with an estimate of 0.511. The conclusion that can be drawn from the results of the hypothesis test that  $H_0$  was rejected and  $H_a$  accepted and statistically with a confidence level of 95% there is an influence of Supply Chain Integration on Supply Chain Performance (KRP) through *Value Added*.

This explains that SMEs have implemented good supply chain integration such as contacts, communication and systems that are in accordance with their suppliers so as to enhance the performance of the SME supply chain in coordination with suppliers, consumers, increased sales, more accurate calculations by providing *Value Added* in offering door-to-door services, stock (inventory), multimodal (more than two types of modes of transportation).

#### 4 Conclusions

This research aims to analyze the effect of Supply Chain Integration on Supply Chain Performance mediated by *Service Capabilities (Service Reliability, Service Flexibility Service Efficiency, Value Added)* in 250 SMEs in Jabodetabek sewilayah. Based on the previous discussion, therefore can be concluded as follows:

There is an influence of Supply Chain Integration on *Service Capabilities (Service Reliability, Service Flexibility Service Efficiency, Value Added)*. This explains that supply chain integration has been implemented that can have an effect on *Service Capabilities (Service Reliability, Service Flexibility Service Efficiency, Value Added)*. So the implementation of supply chain integration in SMEs can improve *Service Capabilities (Service Reliability, Service Flexibility Service Efficiency, Value Added)*.

There is an effect of *Service Capabilities (Service Reliability, Service Flexibility Service Efficiency, Value Added)* on Supply chain Performance. This explains that *Service Capabilities (Service Reliability, Service Flexibility Service Efficiency, Value Added)* have been implemented that can have an influence on Supply Chain Performance. So the implementation of *Service Capabilities (Service Reliability, Service Flexibility Service Efficiency, Value Added)* in SMEs can improve Supply Chain Performance.

There is an influence of Supply Chain Integration on Supply Chain Performance mediated by *Service Capabilities (Service Reliability, Service Flexibility Service Efficiency, Value Added)*. This explains that Supply Chain Integration has been implemented that can have an influence on Supply Chain Performance through *Service Capabilities (Service Reliability, Service Flexibility Service Efficiency, Value Added)*. So the role of *Service Capabilities*

(Service Reliability, Service Flexibility Service Efficiency, Value Added) in SMEs can enhance supply chain integration to Supply Chain Performance.

### **Managerial implications**

SMEs further enhance their supply chain integration by maintaining appropriate contacts, communication and information systems, participation in the marketing of their products so that service capabilities can be improved in reliability, flexibility, efficiency (efficiency) of services and providing value added. SMEs maintain *service capabilities* with reliability, flexibility, efficiency of service and provide value added so that the execution of the SME supply chain in coordination accompanied by suppliers, consumers, increased sales, more accurate calculations can be maintained.

SMEs maintain supply chain integration by maintaining appropriate contacts, communication and information systems, participation in product marketing so that SME supply chain performance in coordination with suppliers, consumers, increased sales, more accurate calculations can be maintained while maintaining *service capabilities* with reliability, flexibility, efficiency (efficiency) of services and providing value added.

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