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# **Uncertain Supply Chain Management**

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The role of innovation and information sharing in supply chain management and business performance of halal products in tourism destinations

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#### ABSTRACT

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Each company will make every effort to improve productivity, efficiency, fast, easy service, and continue to create various new innovations to stay ahead and survive in the market. In addition to productivity and efficiency that need to be improved, companies must also understand and know what consumers need. This study aims to determine and explain the effect of information sharing and innovation in Supply Chain Management partially on company performance. Data was collected by distributing questionnaires. The unit of research analysis is the tourism sector SMEs in Bogor, West Java, Indonesia. Respondents who were used as samples were 210 people. The analytical method used in testing the hypothesis is Structural Equation Modeling (SEM) using Partial Least Square (PLS). This research has succeeded in proving the existence of mediation of information sharing and significant innovation in the relationship between supply chain management and performance.

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#### 1. Introduction

In the global era, competition in the business world is getting tougher. The economy is always experiencing improvement and development, followed by the number of businesses that always grow to keep up with the times and consumer demand that is increasing and diversifying. Companies must be observant and careful in responding to consumer demands who want the best quality at a low price. Therefore, innovation is needed to adapt to the rapidly changing times. Companies without innovation will not compete and survive in an era of increasingly fierce competition. The ability to compete for industry in the global market does not only rely on price and quality, but must be based on creativity and innovation (Esti & Suryani, 2008). The quality of innovation has a significant effect on organizational performance (Azadehdel, 2013).

Assessment of the performance of a business, must take into account the financial and economic consequences of management decisions that affect investment, operations and financing (Kuncoro, 2006). Innovative organizations have the ability to improve individual and organizational performance, increasing competitive advantage (Liao & Wu, 2010). Product innovation and process innovation are able to improve performance, while market innovation is not able to improve performance (Rosli, 2013). There is a significant relationship between entrepreneurial orientation and performance (Zohoori et al., 2013), the higher anticipatory learning and innovation creativity will improve organizational performance (Tatik, 2009). Innovative organizations have the ability to improve individual and organizational performance (Liao & Wu, 2010)

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In addition, information sharing is an important topic to discuss considering that many previous studies have discussed this subject. Information sharing needs to be done by the company because it can help in making a decision or action related to meeting consumer needs, dynamic consumer demand every time makes companies so need updated and valid information. With quality, clear, and transparent information, companies can avoid the bullwhip effect. The same thing stated by Lin et al. (2002) share information with partners in the supply chain can reduce uncertainty and improve service in fulfilling customer orders. So that the high intensity of sharing information can improve the performance of the company's supply chain management. This study focuses on MSEs in the tourism sector in Bogor, West Java, Indonesia. SMEs are the most important pillars in the Indonesian economy. Based on data from the Ministry of Cooperatives and SMEs, the number of SMEs currently reaches 64.2 million with a contribution to GDP of 61.07% or worth 8,573.89 trillion rupiah. The contribution of SMEs to the Indonesian economy includes the ability to absorb 97% of the total workforce and can collect up to 60.4% of total investment (Kementerian Koordinator Bidang Perekonomian Republik Indonesia, 2021). However, the high number of SMEs in Indonesia is also inseparable from the existing challenges. Based on the problems above, the researchers are interested in conducting research related to Innovation and information sharing in the Relation between supply chain management and business performance of halal products in the international market for SMEs in the tourism sector in Bogor, West Java, Indonesia.

#### 2. Literature

## 2.1 Supply Chain Management

Supply Chain Management comes from various scientific disciplines, and there are various definitions (Li et al., 2006). The concept of Supply Chain Management comes from purchasing and supply management, as well as transportation and logistics management (Li et al., 2006; Tan et al., 1998). From a purchasing perspective, Supply Chain Management means supply integration based on suppliers that evolves from traditional purchasing to functional materials management. According to Wisner & Tan (2000) and Reck & Long (1988), Supply Chain Management is a basic strategy of business processes, compared to certain supporting functions. From the perspective of transportation and logistics management, it is the integration of the entire logistics system, and focuses on reducing inventory both within the organization and between organizations in the supply chain (Fisher, 1997; Lamb, 1995). In this case, Supply Chain Management is an integrated logistics into business strategy decisions (Carter & Ferrin, 1995). The combination of the two perspectives eventually becomes one integrated Supply Chain Management and together in the activities of the entire supply chain (Li et al., 2006; Tan et al., 1998). Based on the concept of integrated Supply Chain Management, Shimci-Levi et al. (2000) and Park & Krishnan (2001) provide a definition as a technical set of approaches to efficiently and integrated benefits from suppliers, manufacturers, warehouses and shops (retailers), so that goods and services can be produced and distributed at the right quantity level, in the right location, and at the right time, at the right time, in order to be able to minimize the costs of the entire system while providing service satisfaction according to the level of market needs.

## 2.2 Information Sharing

Information sharing is a continuous flow of communication between partners both formal and informal and contributes to a better planning and control in a chain (Miguel & Brito, 2011). Fawcett et al. (2007) said that sharing information is important because every important process in the supply chain information plays a big role.6 All information in the supply chain process must be distributed because of the company's concept to consumers. A successful supply chain network is carried out together and its activities are synchronized by the flow of information. Sharing information is the key to a successful relationship. Information can also be used by companies as a basis for making decisions at the right time, quickly, and of good quality. The success of the supply chain is highly dependent on the information system, with the information of business partners in the supply chain it can be calculated (Pujawan & Mahendrawati, 2010) Information sharing also allows supply chain members to obtain, maintain, and convey the information needed to ensure effective decision making, and is a factor that is able to strengthen the elements of collaboration as a whole. Industrial congestion can be reduced by the existence of information sharing (Simatupang & Sridharan, 2004).

## 2.3 Innovation

In general, innovation means a value, and new practices that are not widely known, accepted, and used or applied by most of the community members in a particular locality, which can be used to encourage changes in all aspects of people's lives for the sake of realizing improvement of the quality of each individual and all members of the community concerned. (Sukmadi; 2016). Ahmed & Shepherd (2010), innovation is not only limited to objects or goods produced, but also includes attitudes to life, behavior, or movements towards the process of change in all forms of community life. Organizational innovation is related to the design of new organizational formats and new management philosophies. Behavioral innovation is related to the innovation activities of corporate organizations (Sukmadi; 2016; Ramayah T., Soto-Acosta P., Popa S., Ai Ping T., 2014). The benefits of an innovation are the most typical is to provide knowledge, build a brand, build a new container in the form of a new community, and create a new culture. The reason some companies do an innovation is that innovation makes a profit for the company, innovation that produces products or services at a low cost or innovation that provides product differentiation so as to provide a higher price for the additional cost of differentiation. Successful innovation occurs when the product is accepted and generates profits for the company. While the innovation process can be seen when a series of

adoptions of an existing thing is then differentiated so as to create new things whose value and benefits are felt more (Ibrahim; 2009).).

#### 2.4 Performance

Performance or performance is an effort made from the results of work that can be achieved by a person or group of people in an organization in accordance with their respective authorities and responsibilities in order to achieve the goals of the organization concerned legally, not violating the law and in accordance with morals and ethics. Performance is the periodic determination of the operational effectiveness of the organization, part of the organization based on predetermined goals, standards and criteria (Aisidiktya, 2018). Performance refers to the level of achievement or achievement of the company within a certain period of time. The performance of a company is a very decisive thing in the development of the company. If it is concluded that performance is about doing work, the results achieved from the work and what is done and how to do it (Wahyudiati, 2017). Several studies have investigated the relationship between quality practices and innovation performance (Prajogo & Sohal, 2001, 2004; Sing & Smith, 2004). This study discusses whether the practice of Total Quality Management (TOM) is able to increase innovation in the company. Prajogo & Sohal (2001) offer several preliminary studies that seek to examine whether TQM can, in fact, promote or hinder corporate innovation. Although the relationship between TQM and innovation performance has been researched, it is still limited and few. Both TQM and Supply Chain Management are implemented by the company to achieve competitive advantage over competitors. Vanichinchai & Igel (2009) propose some common ground between TQM and Supply Chain Management. Some researchers often argue whether TQM helps or hinders the implementation of TQM (Flynn, 1994; Prajogo & Sohal, 2001, 2003, 2004). It is also important to determine whether the implementation of Supply Chain Management positively affects the innovation performance of the company. For example, in the implementation of Supply Chain Management, the company shares customer requests with suppliers. Such information fosters product innovation among supply chain partners. The implementation of information technology in Supply Chain Management is potentially able to offer new ways of providing services to customers. Soosay et al. (2008) found that collaboration through information sharing has a positive influence on supply chain innovation. Therefore, this study seeks to empirically test whether the implementation of supply chain management can improve the company's innovation performance. The proposed hypothesis is as follows:

H<sub>1</sub>: Supply Chain Management has a positive and significant impact on information sharing.

H<sub>2</sub>: Supply Chain Management has a positive and significant impact on innovation.

Previous research has shown a relationship between Supply Chain Management and organizational performance (Petrovic-Lazarevic et al., 2007). Li et al. (2006) using 196 companies found that the implementation of Supply Chain Management can lead to an increase in competitive advantage and improve organizational performance. Koh et al. (2007) examined small and medium-sized companies in Turkey and also found that the implementation of Supply Chain Management has a direct and significant effect that causes high and low company performance. Research shows an explicit relationship between supply chain management implementation and organizational performance. Therefore, the researcher proposes the following hypothesis:

H3: Supply Chain Management has a positive and significant impact on Organizational Performance.

Organizations that want to progress must have innovative capabilities to improve innovation performance for both individuals and organizations, through the ability to share knowledge. Information sharing among the people involved will be able to create mutually accepting and giving cooperation between employees, so that it will encourage the ability to innovate. Information sharing can increase the company's ability to innovate (Rahab et al., 2011; Lin, 2007). Information sharing is expected to be able to encourage the ability of human resources to innovate and find creative ideas which in turn have implications for improving company performance.

H4: Information sharing has a positive and significant impact on Innovation.

H<sub>5</sub>: Information sharing has a positive and significant impact on organizational performance.

Gopalakrishnan's (2000) research on the effect of innovation on innovation performance shows that there is a relationship between the different dimensions of innovation, namely speed and magnitude and organizational performance of the company. Subramanian (1996) also found that organizational innovation increased organizational performance. Yamin et al. (1997) found that innovation increases the company's competitive advantage, thereby increasing the company's performance. The proposed hypothesis is as follows:

**H<sub>6</sub>:** Innovation has a positive and significant impact on organizational performance.

Based on the description of the literature review and previous research, the framework developed in this study is described in a chart as follows:

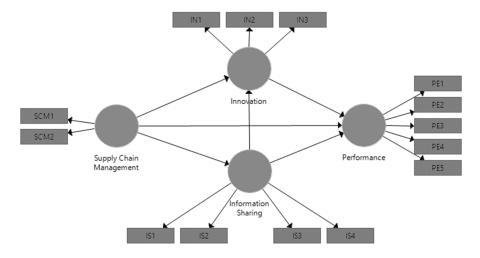


Fig. 1. Research Framework

## 2. Method

Quantitative research is qualitative data that is scored (scoring). The population in this study involved SMEs in the tourism sector in Bogor, West Java, Indonesia. The sample used is a saturated sample where the sample used is the entire population of 210 employees. The variables used in this study are Supply Chain Management (SCM), Information Sharing (IS), Innovation (I), and Performance (PE). The data collection technique is done by using a questionnaire. The number of instruments in this study uses a Likert scale which depends on the number of variables. A scale of 1 (strongly disagree) to 7 (strongly agree). Then the measured variables will be translated into variable indicators (Sugiyono, 2016). Testing the research hypothesis is carried out by using the SEM approach using the PLS analysis method supported by the Smart PLS computer software program.

### 3. Research Results and Discussion

#### 3.1 Result

This study uses respondents with a total of 210 respondents where the average assessment of respondents' answers uses the three box method where the lowest value is 1 and the highest is 7.

 Table 1

 Loading, Composite Reliability dan Cronbach's Alpha

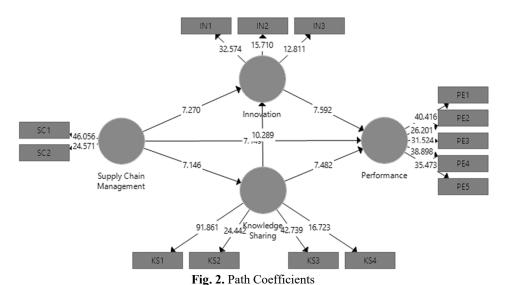
Variable	Indicator	Loading	Composite Reliability	Cronbach's Alpha	
Supply Chain Management	SCM1	0.891	0.863	0.685	
	SCM2	0.852			
Information sharing	IS1	0.920	0.905	0.865	
	IS2	0.796			
	IS3	0.884			
	IS4	0.748			
Innovation	IN1	0.830	0.802	0.636	
	IN2	0.736			
	IN3	0.704			
	PE1	0.895			
Performance	PE2	0.848	0.943	0.925	
	PE3	0.866			
	PE4	0.896			
	PE5	0.880			

Table 1 shows the outer loading of Supply Chain Management (SCM), information sharing (IS), Innovation (I), and Performance (PE) variables above 0.70. All indicators are considered valid if the correlation value is above 0.70 (Ghozali, 2014). Composite reliability value is said to be good if the value is more than 0.70. Furthermore, table 1 also shows the composite reliability value of all variables above 0.70. So it can be said that this variable meets high composite reliability. Cronbach's alpha value can be used if it is greater than 0.60. Table 1 shows Cronbach's alpha values for all constructs above 0.60. So it can be said that the variable has a strong reliability.

**Table 2** The results of R-Square

	R Square
Information Sharing	0.194
Innovation	0.636
Performance	0.822

Table 2 shows the model of the influence of supply chain management (SCM) on information sharing (IS) showing an R-Square value of 0.194. This is able to explain the information sharing construct variable explained by the supply chain management variable of 19.4%. Meanwhile, 80.6% is explained by other variables not examined in this study. The model of the influence of supply chain management (SCM) and information sharing (KS) on innovation (I) shows an R-Square of 0.636. This is able to explain the variables of the innovation construct that can be explained by the supply chain management and information sharing variables of 0.636 with a percentage of 63.6%. Variables not examined in the study were able to explain employee performance. Meanwhile, 33.4% is explained by other variables not examined in this study. The model of the influence of supply chain management (SCM), information sharing (IS) and innovation (I) on performance (PE) shows an R-Square of 0.822. This is able to explain the performance construct variable that can be explained by the supply chain management, information sharing, and innovation variables of 0.822 with a percentage of 82.2%. Variables not examined in the study were able to explain employee performance. Meanwhile, 17.8% is explained by other variables not examined in this study.



**Table 3**Result Path Coefficients

	Original Sample	T Statistics	P Values
Supply Chain Management → Information sharing	0.441	6.899	0.000
Supply Chain Management → Innovation	0.405	7.337	0.000
Supply Chain Management → Performance	0.345	6.877	0.000
Information sharing → Innovation	0.531	10.339	0.000
Information sharing → Performance	0.298	7.271	0.000
Innovation $\rightarrow$ Performance	0.411	7.879	0.000

A formative construct will be declared significant if it has a P value smaller than the 5% significance value (P Value < 0.05) and has a T statistic value > 1.96. If you look at the data in Table 3, it can be seen that the influence of the supply chain management relationship on information sharing; Supply chain management towards innovation; Supply chain management on performance; Information sharing on innovation; Information sharing on performance; Innovation on performance has a P Value < 0.05 and a T Statistic value > 1.96, so it is accepted (significant).

Table 4
Indirect Effect

	Original	T	P
	Sample	Statistics	Values
Supply Chain Management → Information sharing → Innovation	0.234	5.806	0.000
Supply Chain Management → Information sharing → Performance	0.131	5.032	0.000
Supply Chain Management → Innovation → Performance	0.166	5.497	0.000
Information sharing $\rightarrow$ Innovation $\rightarrow$ Performance		6.069	0.000
Supply Chain Management → Information sharing → Innovation → Performance	0.096	4.803	0.000

In this study, the intervening variable test was carried out by bootstrapping the research model by looking at the value of T Statistics and P Value on the specific indirect effects test so that it can be seen how influential/significant the intervening variable is between the independent variables on the dependent variable as an indirect relationship. From the test results in Table 4, it can be seen that information sharing mediates the influence of Supply chain Management on innovation; Information sharing mediates the influence of supply chain management on performance; Innovation mediates the effect of information sharing on performance; Information sharing and innovation mediate the influence of supply chain management on performance.

#### 3.2 Discussion

This study also provides empirical evidence on the research model framework between Supply Chain Management, Information Sharing, Innovation and Organizational Performance. This study supports the research of Koh et al. (2007), Li et al. (2006), and Petrovic-Lazarevic et al. (2007). However, this strategy will not last long in the future, companies must operate effectively and efficiently by implementing Supply Chain Management (Chong & Ooi, 2008; Khang et al., 2010). The relationship between Supply Chain Management and Innovation has been built and applied to Manufacturing Companies and Service Companies. Prajogo & Sohal (2001, 2004) propose that innovation can be increased through Total Quality Management (TQM), this study proves that the implementation of Supply Chain Management has a positive and significant impact on innovation. The company's production is more efficient and able to meet customer needs better.

The combination of the use of Information Technology and the strategy of sharing information with suppliers enables the company to create product/service innovations. Research proves the higher the level of innovation, the higher the level of organizational performance. This study shows that the implementation of Supply Chain Management affects Innovation and Organizational Performance is Internal Operations. The results of the study support the research of Petrovic-Lazerevic et al. (2007) which states that it is very important for companies to improve internal integration before carrying out external integration (eg with Strategic Supplier Partners)

The research model shows that innovation can improve organizational performance. Decision makers must continuously improve the company's performance. Although the research was conducted in a developing country (Indonesia), the research results are consistent with research results in developed countries (United States and Australia). Petrovic-Lazarevic et al. (2007) show the results of the same study where the implementation of Supply Chain Management in Australian manufacturing companies has a positive and significant effect on organizational performance. Consistent with the research of Li et al. (2006) who conducted research on US companies. The research implication is that Supply Chain Management is important for companies whether the company is located in the country or abroad.

Managers must be aware of the mediating effect of innovation that can improve organizational performance. Therefore, more effort is invested in Research and Development and production to open a culture of innovation. The results showed an increase in consistent performance in both manufacturing and service companies. In accordance with the research of Koh et al. (2007) and Li et al. (2006), this study develops and validates a multi-dimensional construct of the implementation of Supply Chain Management, which can help decision makers to evaluate the efficiency of the implementation of Supply Chain Management..

## 4. Conclusion

This study explains the relationship between the implementation of Supply Chain Management, Knowledge Filtering, Innovation and Organizational Performance, and develops a research model to examine the relationship. Empirical results suggest that Supply Chain Management is able to improve knowledge sharing, innovation capabilities, and organizational performance. The results of this study help corporate decision makers to know the importance of Supply Chain Management and the effect of Supply Chain Management implementation on innovation. Decision makers can prioritize the implementation of Supply Chain Management to improve organizational performance. There are some limitations of the study. Research only focuses on local SMEs, future research should examine foreign multinational companies, so that comparisons can be made between countries. Future research can examine other variables, such as organizational culture, supply chain structure, and supply chain length as proposed by Koh et al. (2007). In order to avoid method bias, future

research could collect data from multiple respondents from each company (e.g. managers, engineers and executives in the Supply Chain Management department or the Logistics Department).

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