Determinants of Supply Chain Performance: Moderating Role of Firm Size in Tourism Hotel Industry in Indonesia

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Abstract-In recent decade. Supply Chain Management is emphasized for determining the performance of firms in any industry. SCM contribute in enhancing performance of firms to perform better in competitive environment. Current study emphasized on predictors of supply chain performance in tourism industry of Indonesia. Study entails integration with supplier and information sharing to be influential on supply chain performance. The study determined the relationship between exogenous and endogenous variable with the moderating role of firm size. Smart PLS is used to analyze the data collected from respondents associated with tourism industry of Indonesia. Measurement model and structure equation model is used by using PLS to analyze direct effect and to determine moderating role. The study can be considered as empirical work that investigates important factors to be influential on supply chain performance of tourism hotel industry of Indonesia.

Keywords: Supply Chain Performance, Tourism

1. Introduction and background

The success of the business in modern era and highly competitive environment depends upon supply chains as instead of autonomous efforts of business.

Technology has changed the basis of competition and business management around the world also entered in global and technological era. Previous decade focused on competition in terms of products or store to store and brand versus brand; now the new era entails and recognized role of suppliers and it has become supplier-brand-store versus supplierbrand-store in competitive world. The management of business entity and its relation with other related businesses ensure the success of business [1], [2].

Supply chain management is referred as relationship management among different nodes involved in supplies from raw material to finished goods. Supply chain is not only express the inside business chain but network of multiple businesses relationship including supplier and distributors. The relationship of inter and intra company management creates synergy at business and success and goals of firms becomes achievable due to effective supply chain [2]. The excellence of business processes and novelty in management addresses by supply chain management (SCM) with external operators and internal activities.

Currently, the importance of supply chain has been recognized over time in business and its accomplishment of goals. The effectiveness of supply chain at business relations and processes play important role in overall success of business, so it must be carried out effectively. Therefore, through supply chain management (SCM) must be enforced in order to gain effective results and efficient relationship among suppliers to achieve success [3]. For achievement of maximum productivity and value addition, further helping for reduction in cost and customer satisfaction can be achieved by effective supply chain in highly competitive environment [4]. Corporations have faced challenge of improving efficiency and effectiveness for their supply chain for sustainability of their competitive edge [5].

The researchers have coined Lean management and incorporated for SCM for cost reduction, delivery time and improvement in effectiveness [6], [7]. Lean is being used in corporations for enhancing performance and for SC management as long term strategy for guidance companies [8], [5]. Global competition and local competition is being exerted in business environment throughout the world and in every industry. Therefore, firms take their business activities to other countries; which are expected in competitive environment to reduce cost and to take other benefits too. Consequently, firms focused on improvement for their supply chain to respond global competition [9].

Strategic nature of relationships among associated industries and firms must be active and effective; these important entities including suppliers, intermediaries, and distributors, manufacturing units, service departments and customers must be aligned to accomplish the goals and objectives of firms in highly competitive environment [10]. Scholars have defined supply chain as a linkage the nodes from raw material commodity to finish good, including processes of collection of raw material, manufacturing, marketing, sales, marketing, distribution and customer service departments to deliver finished goods to customers [9]. According to various scholars and definitions given by them it is evident in literature that SCM incorporate all activities from raw material to end product and its service to customers. The scholars have developed General supply chain model for complete understanding for effective management and operations [3].

Recently, sustainable supply chain management is growing and taken attention of researchers. Scholars have argued for sustainable SC into practical aspect for successful business outcomes and performance. Contrary, enlarged number of research papers on SSC (Sustainable supply chain) shows that term sustainability is over stretched and it is raised as question [11]. The researchers have raised question on similarity or difference between conventional SCM and sustainable SC; as discussed in [12] as major driving force to conduct study. Previously, researchers [13], [14] have argued that research on SCM will be treated as SSCM in future, as sustainability is required in all aspects to enhance performance or gain competitive edge [12]. Sustainable performance in supply chain requires managing supplies in effective and efficient way to get required achievements [15]. The procurement function linked to the suppliers [16] found to be limited for assessing the impact and effectiveness of whole SCM [12].

Tourism industry has emerged over period of time and one of economic indicator in global context. According to UNWTO (United National World Tourism Organization) tourism found to be significantly increased since world war II. Another study [17] depicted that tourism industry played important role and significant contribution in world economy. The statistics shows that number of trips have been increased and also number of tourist has been increased over number years and revenue of tourism industry has been increased from 25 million US \$ to 1186 billion US \$ in 2015 [18]. The rapid speed of increase in tourism industry can be observed and widely evident and growth of industry found to be significant. The contribution of tourism industry in GDP has significantly increased in recent years as 9.8% [17]. Tourism industry requires up-to-date information and prime service quality for its customers in dynamic way in competitive environment to meet expectations [18].

In tourism industry must entails innovative ideas for providing best customer services as they are valued by tourists around the world. These ideas must be integrated with the strategies of hotel tourism industry. Tourism industry and firms related to tourism are interrelated and act as supply chain to contribute in the success of firm (hotel) and in industry [19]. In overall tourism industry success depends upon the effective cooperation while focusing on supply chain, as these firms are interrelated and coordinate each other for their needs to satisfy customers. Researchers have explained the integration of supply chain related to tourism industry to satisfy their customers and to enhance and sustain their performance as competitive edge [20], [18]. They coined the term TSC (Tourism Supply chain) as truly network of various firms deal in similar industry to perform same activity whereas it range from various products or services [19], [21], [18].

2. Indonesian Tourism Industry

Tourism play important role in economic growth of any country, for Indonesia tourism industry found to be very effective in contribution of GDP in recent years. Indonesian tourism industry generated significant income and increase has been observed from \$ 1100 to \$ 1200 per visitor. The increase in tourism has positively influenced employment figures in providing opportunities for large number of local peoples to work and resulted in stopped unemployment rate at 5.81% and 9% workforce is associated with tourism industry in Indonesia. contributes in Indonesian Tourism industrv economy at 8% of total income, further government targeted to increase the contribution up to 16% by the end of 2018; which seek to increase number of visitor around 20 million per vear. Government has invested on infrastructure, health and online promotions to attract visitors around the world. Visa free policy also introduced since 2015 to attain the objective of increase in tourism [18]. The following figure shows increased tourism since 2007 to 2015.



Figure 1: Foreign tourist arrives in Indonesia: Source: [18]

The current study entails the key factors of supply chain affecting tourism industry in Indonesia. These factors include integration with supplier & affect supply information sharing chain performance with moderating role of firm size. The considers these factors with study unique combination to examine the tourism industry's SC performance in Indonesia, the study claims to be one of the pioneer to explain the relationship of these variables for determination of SC performance of hotel industry in accordance with supply chain.

3. Literature review

Team of academic researchers and group of non competing organizations used to have discussions to explain SCM in practice and theory. The definition of SCM coined by Global Supply Chain Forum (GSCF) is as follows:

"Supply chain management is the integration of key business processes from end user through original suppliers that provides products, services and information that add value for customers and other stakeholders." [22].

The simple supply chain network includes information and product flow from raw material to finished goods, and key supply chain business processes includes functional activities across other related corporate and their supply chain. Thus, the business process of one organization linked to other business' boundary. The study [22] conducted to explain the relation of SCM to logistic and literature is given for explanation marketing channels. The study also describes and report findings and key issues relates to SCM framework and its elements. The study reported relation of each element although they are closely interrelated in practice. The study includes discussion on processes of business and to relate it with SCM, which finally suggest few guidelines for effective supply chain management [22].

Researchers have conducted empirical research on SCM and established as field of research and practice [23]. The business organizations consider and pay attention for effective supply chain to reduce and minimize waste for reducing overall cost, as more waste increase cost [24]. Business firms focus on performance enhancement by pay attention on environmental management for financial optimization at early stages of SCM [22]. Further, the idea termed and emerged as Green SCM (GSCM) and culminated as SSCM [25]. In previous years studies related to SSCM has been increased as more issues are being faced by industry in managing of their supply chain activities, so SSCM found in academic research.

Literature on SSCM includes sustainability in theory of SCM which is based on triple bottom line (TBL) approach. The approach includes consideration related to all three pillars economy, ecology and society under umbrella of sustainability [22]. The definition of SSCM is given by [23] as follows:

"The management of material, information and capital flows as well as cooperation among companies along the supply chain while taking goals from all three dimensions of sustainable development, i.e. economic, environmental and social, into account which are derived from customer and stakeholder requirements"

The researchers have included inter-organizational information sharing for effective management as above mentioned definition takes TBL into account; further, stakeholders of firms are included as an important node of SCM. On the other hand, researchers have criticized TBL, but it can be taken into consideration as it is an established approach theoretically and practice [26]. The flow of research on SCM shows that firms implement practices of SSCM and GSCM to obtain sustainable policies for improvement in performance and to create value [22]. Hence, every firm organizes their supply chain into more sustainable way to harvest more benefits. Similar definitions, findings and explanations are depicted by various researchers [27]; which focuses on long term SSCM.

These practices of long term SCM emerges gradually within organizations and companies in competitive environment and in-line with emerging strategies. Literature entails discussion about categories and practices of SCM; the literature focuses on the most powerful and influential node in supply chain of the firms to become more effective and take benefits. These benefits include continuous improvement in performance, sustainability, demanding and involvement of suppliers and associated participants to become more effective in accomplishment of their goals [28]. The potential benefits of effective SCM motivate organizations to take in consideration successful relations for beneficial SCM. The literature has categorized SCM practices and emphasized on enhancement of performance through SCM. The link has been established over time by various researchers [22], [25], [27].

Integration with suppliers and supply chain performance (Tourism Hotel Industry)

Suppliers for any business plays crucial role in the smooth operational activities and considered as an

Vol. 8, No. 1, February 2019 important factor for success of firms. Integration with suppliers needs effect communicative mechanism for collaboration and information

with mechanism for collaboration and information sharing at strategic, tactical and operational level [29]. Literature presents the benefits of integration with suppliers as an important node of SCM, the effect of effective supply chain and integration with suppliers improve performance. There are various other factors including culture, capability of information system and lack of managerial skills are stated as barriers while integrating suppliers and generate benefits to create effective supply chain. Researchers have conducted studies on benefits of SCM while integrating with suppliers; according to [30] they supply chain of firm can be improved and managed for enhancing benefits while improving its working.

The performance of firms improved when they establish systematic and effective relationship with suppliers, the empirical evidence have been provided by Childerhouse and Towill; as they conducted study to empirically examine the effect of supply chain on performance of firm, they found that wider supplier relations effect and improve performance of any industry [31]. Researchers have examined the moderating role of integration of suppliers between customer integration and efficiency [33], [34]. Researchers have reported positive effect of supplier integration on performance of firms; the relationship is mediated between process modularity and performance [34]. researchers have suggested Contrary, that integration of supplier doesn't have any effect on performance of firms, operational activities,, but integration with suppliers and customers impact operational efficiency and performance.

The positive impact of integration of suppliers has been reported in studies on link establishment in supply chain, which leads towards improve in performance [37]. Indirect impact of supplier's integration on performance of firm is examined through SCM practices and competitive capability [38], [39]. The integration of suppler found to be positively significant to on-time delivery, product/service quality, production cost and flexibility in prior studies [40], [41].

The studies have empirically examined complexity of supply chain, effective supply chain positively impact performance of firm as greater as the integration with suppliers [42]. Information technology and advancements mediate relationship between suppler relation and performance. Technological advancements have been widely used for information sharing, timely cooperation and coordination, cost effective and quick source of information dissemination. IT mediate relationship between supplier integration and performance of firm, as IT is being used for integration purpose widely around to the world to perform in highly competitive global environment [43], [44]. Supplier integration remains important factor in research and examined in various aspects of SCM and to measure its impact on performance of firm. The prior studies examined supplier's integration and their impact on financial, operational and SC performance.

On the basis of above discussion, it is evident that literature support the link between supplier integration and performance and it remains inconclusive, the following hypothesis is formulated:

H1: Integration with Supplier has positive impact on performance of tourism hotel industry of Indonesia

Information sharing and supply chain performance (Tourism hotel Industry)

Information sharing has crucial importance in organizational operational and strategic decision making and routine activities. Researchers have depicted information sharing (IS) as organizational capital which shows the flow of information across the organization and its participants. Effective utilization of information on time among stakeholders and participants enable firm to take decision timely and quality also matters in dissemination information [45]. Recently, researchers have postulated that infrastructure of IT and effective delivery system of information presents quality, accurate, relevant and accessible information to be shared with stakeholders to take decision [46], similarly [47], [48] depicted same arguments that information sharing plays important role in decision making, hence effect performance of tourism hotel industry. The study conducted [49] explained the relationship between information sharing and performance SCM of firm with mediating role of top management commitment. The role of top management is focused in the study that involvement of top regime play significant role in knowledge and IS. Further, mediating role of TMC (Top Management Commitment) has been

discussed in studies and found to be influential that top management plays significant role in relationship [49].

Few studies have been conducted on SCM in tourism industry; however, there is significant gap to address. Current study addresses the role of information sharing in tourism industry' SC to determine the performance. Activities associated with tourism includes participants, suppliers which similar sort of services, operations and agents and customer or clients [18].

SCM in tourism industry addresses various fields including hotel industry, transportation, restaurant and other related entertaining activities [50]. Integrated system plays vital role to integrate all these activities into one system for information sharing specifically in the SCM context. While expressing or considering the role of hotel industry suppliers need to communicate with hotel's management for inventory stock and information needed to minimize the delivery time [51]. Hotel industry needs to share information on time with their supplier for effective communication for inventory and to fulfill customer need. The operational and financial outcomes determine the performance of SC in tourism hotel industry by lowering the time, cost and effective communication with suppliers [52], [53].

Market share, cost and benefits are associated with performance measures in SC of tourism hotel industry [18]. Customer satisfaction is highly valued in tourism industry and internal processing of system must be efficient, which should lead towards innovation and integration in supply chain among participants. There are various reasons reported by literature related to supply chain of companies in tourism industry which includes attraction of location, facilities provided and activities present at the tour [18], [54], [55]. Researchers have studied supply chain in tourism industry and depicted various concepts and strategies addressing distribution, relations and information sharing and quality to gain competitive advantage. Availability of information and accuracy plays important role in taking decision and operational activities among participants to gain competitive edge in highly competitive and global environment based on IT, which helps firms to collect, process and disseminate information in minimum time while limiting the cost [18], [56].

Satisfaction of tourism, financial performance and operational performance are found to be examined for measurement of sustainable development in SC of tourism industry. These are few indicators depicted by literature and empirical research to be influential for SC in tourism industry [57]. The purpose of each participant in supply chain of any industry entails various objectives, largely it includes minimize cost, effective information processing, client satisfaction, maximize benefits and operational efficiency. The operators in supply chain strive to create value in their activities and improve business performance by working to gain more financial gains and to increase market shares. Another purpose found to be sustaining competitive edge in the field of tourism, the attracting new customers and tourists in their relevant region of interest stated as another prime objective of the tourism industry and agents [18]. The selection of effective partners in highly competitive market found to be complex task and significant of these business partners and their supply chain efficiency plays vital role in success of firm and commitment of potential partners. Integration among suppliers and other business partners, information sharing and quality of information influence whole supply chain to take better and timely decisions to enhance performance at tourism industry. The nature of tourism industry found to be rapidly changing and dynamic due to involvement of IT based infrastructure. Information sharing and quality of information based on available sources of IT system to be used among partners.

On the basis of above discussion following hypothesis is formulated:

H2: Information sharing positively influence SC performance of tourism hotel industry in Indonesia

Moderating role of Firm size in relationship between Integration with supplier and supply chain performance (Tourism Hotel Industry)

Literature considers various variables as controlling or moderating variables to determine the supply chain performance in diverse market and industries. Current study entails firm size as moderating variable to determine the relationship between supplier integration and supply chain performance. Firm size found to be an important factor in conducting operational activities in hotel and tourism industry. Firm size involves in decision making, information sharing and quality, further firm size also proposed to be influential in determining the relationship between supplier relation, information sharing (Independent variable) and supply chain performance (Dependent Variable).

Researchers have highlighted various other factors including firm size, type of industry, quality standards and export orientation as moderators to determine the relationship of supply chain performance and related influential variables [58], [59]. The current study included firm size as moderating variable to determine the relationship between information sharing and supply chain performance; moreover, moderating effect of firm size will be examined between relationship of supplier integration and supply chain performance; as firm size found to be highly relevant in defined constructs of the study.

Various scholars have reported firm size as significant influential construct in determining the SCM practices or green SCM context as well [60]. However, studies also found insignificant and inconclusive findings between SCM practices and emerging economies in Asian context. Firm size found to be insignificant in adoption of green SCM practices in Asian context study conducted by [61]. Contrary, firm size has no affect in adoption of SCM practices [62] but in contrast firm size found to be positively related to activities of SCM such as green purchasing and designing in textile manufacturing industry [63].

Therefore, firm size is introduced in the current study as moderator to analyze the relationship of information sharing, integration with supplier and supply chain performance. Thus, hypothesis developed as follows:

H3: Firm size moderates the relationship between supplier integration and supply chain performance in tourism hotel industry.

Moderation role of Firm size in information sharing and SC performance (THI)

Previous section of the study discuss moderating role of firm size in various studies and stated inconclusive results. The moderating role of firm size between information sharing and SC performance will be interesting findings of the current study. Firm size is relevant because large firms believed to be more innovative as compare to small and medium firms due to availability of resources including financial, physical and human resources [64]. Firm size also influence innovation capability in supply chain, as large firm has number suppliers and stakeholders whom of to management needs to share information for effective supply chain performance; in contrast of small and medium firms has less capability and to communicate with less number of stakeholders [64], [65].

Therefore, firm size is needs to examine as moderator between information sharing and supply chain performance; as firm size plays vital role in determining the number of activities and information sharing among stakeholders. Thus, following hypothesis is formulated:

H4: Firms size moderates the relationship between information sharing and supply chain performance in tourism industry in Indonesia

Research Framework:



Methodology:

This section of paper discuss about the methodology, sample of study, unit of analysis, data collection tool and method of collecting data from tourism operators in Indonesia. Questionnaire was distributed among all tourism related people, hotels and employees operating in Indonesia. The sample was selected among large and small both sized of firms to determine the moderating role of firm seize in the relationships of constructs. A total of 400 questionnaires were distributed in the

tourism associated firms. Few participants were unwilling to respond, 15 were not able to use due to incomplete responds and total 241 valid responses were used to analyze the data. The response rate was 60.25 for the study. The unit of analysis was individual working in tourism industry. The questionnaire was adopted by various researchers for each construct related with tourism services and each item of scale was measured again 5-point likert scale where 1 as strongly disagree and 5 as strongly agree.

Instrument:

'Supply chain performance' was measured by using scale developed by Whitten et al. (2012) and used by various researchers including [66]. The 11 item scale has cronbach alpha (α) 0.812; which is highly acceptable.

'Integration with suppliers' was measured by 7 items scale adopted from [67, 68, 69]. The scale has cronbach alpha (α) value acceptable at 0.855 [70,71].

'Information sharing' was measured by 5 items developed by Cao & Zhang (2011) and used in [67]; cronbach alpha was reported as 0.911; which is highly acceptable.

'Firms size' was measured by two item scale including number of employees and sales. The scale was developed by Camiso'n-Zornoza et al., (2004), and adopted from [68]. The cronbach alpha (α) was reported at 0.71 & acceptable.

4. Results and discussion

Measurement model:

PLS-SEM is used to analyze the relationships of framework for current study. Advantage of using PLS-SEM includes that establishing measurement and structural modeling has no strict assumption of population or sample. Crobnbach alpha has been examined of all constructs to assess the reliability of scale and all reported above 0.7 which is highly acceptable as shown in table 1. Therefore, all measurement has strong reliability.

S#	Constructs	Items	α	Remarks
1	SCP	11	0.812	Acceptable
2	IWS	07	0.855	Acceptable
3	IS	05	0.911	Acceptable
4	FS	02	0.711	Acceptable

Internal consistency confirmation is assessed by investigating composite reliability (CR) and average variance extracted (AVE). CR must be higher than 0.7 and AVE must be greater than 0.5 [67]. Table 2 shows all CR and AVE values of constructs and indicate strong convergent validity.

Table 2: Composite Reliability and Averagevariance extracted:

S#	Constructs	AVE	CR	
1	SCP	0.81	0.84	
2	IWS	0.86	0.88	
3	IS	0.90	0.93	
4	FS	0.75	0.77	

For discrimant validity of measurement model; square root of AEVs is calculated and compared to those values with correlations of each variable. Table 3 shows results of dicrimanat validity in diagonal and square roots in non-diagonal elements.

Table 3: Discriminant Validity of constructs

Constructs	SCP	IWS	IS	FS
SCP	0.848			000000
IWS	0.214	0.913		
IS	0.397	0.416	0.944	
FS	0.242	0.404	0.401 0.892	



Figure: 2; Research model PLS

Structural Model:

The current study used PLS-SEM for establishment of structural model and used bootstrapping procedure. Hypothesis testing is discussed in this phase of the study. Hypothesis Testing:

Hypothesis 1: Direct effect: Integration with Supplier has positive impact on SC performance of tourism hotel industry of Indonesia

Results showed that hypothesis one statistically significant positive relationship between supplier integration and SC performance at tourism hotel industry of Indonesia, with path coefficient of 0.337 and a t-value 4.12 at 0.01 level of significance. Therefore, H1 supported.

Table 4: Direct effect H1

S#	Relationships	Path cof	T-Value	Decision
Hl	IWS→SCP	0.337	4.121	Supported

Hypothesis 2: Direct effect: Information sharing positively influence SC performance of tourism hotel industry in Indonesia

The results of second hypothesis also found to be significant positive relationship between information sharing and supply chain performance at tourism hotel industry of Indonesia. The results in table 5 show the direct effect between construct of hypothesis 2. Path coefficient of relation is observed as 0.314 and t-value is observed as 3.938 and sig level of 0.01. The t-value of relationship found to be higher than the cutoff point 1.96; Therefore H2 supported.

Table 5: Direct effect H2

S#	Relationships	Path cof	T-Value	Decisio
H2	IS→SCP	0.314	3.938	Suppor

Moderating Effects:

H3: Moderator Firm size: *Firm size moderates the relationship between supplier integration and supply chain performance in tourism hotel industry.*

In table 6; moderation effect of firm size is shown; hypothesis 3; results shows t-value 0.423 found to be lower than cutoff point 1.96; which indicate that firm size doesn't moderate statistically significant. Thus, the result shows no credibility and rejected. Therefore, H3 is rejected. The moderating effect of firm size on the relationship of integration with suppliers and SC performance found β value as (β = 0.021, t = 0.423, p<0.05), hence H3 rejected.

Table 6; Moderation effect:

S#	Relationships	β	T-Value	Decisi	
H3	IWS*FS→SCP	0.021	0.423	Reject	

H4: Moderator Firm size: *Firms size moderates the relationship between information sharing and supply chain performance in tourism industry in Indonesia*

In table 7; moderation effect of firm size is shown; hypothesis 4; results shows t-value 4.093 found to be higher than cutoff point 1.96; which indicate that firm size moderate statistically significant between information sharing and supply chain performance. Therefore, H4 is accepted. The moderating effect of firm size on the relationship between information sharing and SC performance found β value as ($\beta = 0.421$, t = 4.093, p<0.05), hence H4 accepted on statistical grounds.

Table	7;	Moderating	Effect:
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S#	Relationship	β	T-Value	Decisio
H4	IS*FS→SCP	0.421	4.093	Accept

5. Conclusion

The study investigates the supply chain performance of tourism hotel industry of Indonesia. The study entails two important predictors of supply chain performance with moderating role of firms' size. The study found interesting findings that integration with supplier is important factor which plays role in enhancing and maintaining supply chain performance in competitive and rapidly changing environment. The increased coordination and effective communication for information sharing among various stakeholders and suppliers enable firms to maintain their performance. The results have shown that integration with supplier positively significantly influence supply chain performance. Hence, hypothesis 1 is accepted on the basis of t-value. Information sharing remain one of most important factor in determining supply chain performance in any industry, the current study determined the supply chain performance in tourism hotel industry of Indonesia; information sharing among stakeholders including supplier and clients have significant importance in any business setting; the study found information current sharing significantly positive influential for supply chain performance. Hence, hypothesis 2 is accepted with significant t-value. Further, moderating role of firm size is also determined, firm size is an important factor in any organization for effective operational efficiency. The size of firms depends on number of employee and sales. The results have shown that firm size doesn't moderate the relationship between supplier integration and supply chain performance; hence hypothesis 3 is rejected on basis of t-value. Contrary, firm size moderates relationship between information sharing and supply chain performance in tourism hotel industry of Indonesia. Hence, hypothesis 4 is accepted on the basis of significant t-value. The study focused on enhancing supply chain performance in tourism hotel industry of Indonesia and identified two predictors associated in continuous and improved performance.

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