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Using Supply-Side-Chain Functions to Enhance Channel Performance (Revised Version)

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Abstract

The purpose of this study is to seek feasible supply-side-chain (SSC) functions/ strategies to promote channel performance to diminish the hazard of losing efficiencies in the garment industry. We utilize the LISREL model to examine cause and effects relationship among supply-side-chain functions, service innovation and channel performance. *Since the relationship between SSC function and service innovation (including supportive innovation and interactive innovation) is scant, and service innovation can effective contribute to channel performance, that the need of this study is then emerging.* We employ quota sampling method to survey 400 customers and clerks from Taiwan's top 10 garment companies, in terms of net assets, on the basis of printed questionnaires. SSC leanness in garment companies can mainly promote channel performance from the channel of supportive innovation. The supportive innovation is supposed to appear after the long usage and not discovered at the initial time period. Then, the invisible supportive innovation is supposed to achieve a certain level of opportunity benefit to restart the companies.

Keywords

Service Innovation, Interactive Innovation, Supportive Innovation, Supply-Side-Chain, Channel Performance, Sales Performance

1. Introduction

The purpose of this paper is to highlight the casual relationships among supply-side chain (SSC) functions, service innovation, and channel performance. Channel performance can be viewed as a critical issue in voluminous companies; channel performance is an outcome of a whole process, through which a company makes correct decisions and moves toward a promising future. Furthermore, channel performance can be examined as the attainment of goals, as well as the effectiveness and efficiency of channels in [1]. Therefore, numerous companies have deemed channel performance to be the most essential index of channel operations.

The importance of service innovation has become clear in Taiwan. The service industry constitutes over 60% of GDP in Taiwan from the report of the Council for economic planning and development in 2015. Thus, to attract consumers, service innovation has been considered. In recent years, service innovation is extraordinarily imposing in Taiwan. Taiwanese garment companies are well known to be able to reduce costs, which consequently suppresses profits in the garment industry. For example, the profit rate of high-technology companies is approximately 3% from the Directorate-General of Budget and Accounting. Companies want to increase profits by raising added value; with in this context, decisions pertaining to service innovation become crucial. Service innovation has recently played a substantial role in the garment industry. The new entry of Japanese and European garment companies has generated completely different service offerings to customers. They have obviously been largely successful. Traditional Taiwanese garment supplier companies have moved to China and Vietnam to employ cheaper labor, because they are still attempting to lower costs, and delay the adoption of service innovation. Because of service innovation concerns, numerous scholars have discussed serial movements; innovation has substantially

contributed to the growth and management of service industries, and increased their economic influence in [2].

In this paper, we deem service innovation as the synonym of supportive innovation and interactive innovation. Supportive innovation and interactive innovation can be reasonably considered to be mediating variables between the SSC function and channel performance. Supportive innovation means the preparation involved in offering new services, such as gathering resources, the design process, and the implementation of services that customers do not notice, but nevertheless exist in [3]. Interactive innovation means new or different service offerings that customers enjoy and are surprised by [4]. Salunke and Weerawardena [3] indicated supportive innovation has more significant effect on sales performance. We then follow to present a discussion on the casual relationships among supportive innovation, channel performance, and sales performance. It is essential to identify supportive innovation, which influences channel performance (and sales performance) to enable managers to work toward maximizing the value of supportive innovation; favorable supportive innovation designs can induce customers to purchase services in [5].

The interaction between interactive innovation and supportive innovation is also critical. Supportive innovation has been suggested to positively affect interactive innovation. Supportive innovation is similar to backstage preparation for interactive innovation. When a company offers a new service, it must gather resources and equipment, and implement well-designed processes to ensure a successful service offering in [3]. Therefore, supportive innovation positively influences interactive innovation.

A well-operating SSC function can provide enhanced value-added services and end-user experiences ([6], [7]). In this manner, service innovation can contribute to market performance in [8]. We inferred service innovation to be a favorable mediating variable. For example, in the garment industry, based on a favorable SSC function, upcoming clothing trends may be predicted, and a nonstop supply may be ensured. Thus, clothes that customers want can be offered consistently, and most crucial customer demand can be satisfied. These SSC functions promote the level of service. Similarly, rapid clothing delivery, higher price discounts, an abundance of choices, and trend predictions, can all contribute to channel performance in the garment industry [9].

In this paper, we also deem SSC agility, SSC leanness, and SSC visibility as the synonym of SSC functions. SSC agility is the ability to rapidly overcome unexpected changes and continuously shifting environments [10]. SSC leanness is the elimination of excess waste, and set-up time to enhance productivity and quality [11]. SSC visibility is the information access and the sharing of SSCs ([12], [13]).

We further present various management attributes resolving management problems. It relies on SSC agility, SSC leanness, and SSC visibility. The process indicates that SSC leanness can be a powerful management tool with service innovation in [14]. This suggests that SSC leanness may play a crucial role with supportive innovation, because compared with the alternatives, SSC leanness could enable return customers by yielding price cuts, and maintaining a favorable quality in [15]. To implement service innovation, omitting unnecessary services is essential to enable the service process to flow. In the garment industry, the concept of leanness must be applied to the SSC, irrespective of whether it concerns manufacturing or service offerings based on practical evidence.

As to useful tool of SSC alignment, SSC alignment is defined as effective communication between the SSC and stakeholders in [16]. However, the scope of SSC alignment is too narrow for use to explore the causes of service innovation, and it is unlikely that SSC alignment can be used to resolve management dilemmas. Similarly, SSC quality management is another tool that to solve problems with products, but it has no direct relationship with service innovation ([3], [17]).

The literature review shows numerous studies related to SSC agility, SSC leanness, and SSC visibility ([18], [15], [19]). However, research that has explored the relationship between SSC function and service innovation is scant. Information on the concepts of service innovation is also lacking.

2. Research Framework and Hypothesis Development

2.1. Theory Background

Based on the variables in [3], this study analyzes concepts that pertain mainly to the following: SSC function, service innovation, channel performance. Interactive innovation and supportive innovation are mediators in the relationship between SSC function and channel performance. We also applied the cognitive evaluation theory in [20]. He argues that once external incentives such as price cuts are stopped performance drops drastically. However, internal incentives such as service innovation can be used to stable, durable, high-quality performance in [21]. Rather than implementing price cuts, strengthening service offerings could yield greater impact on customer satisfaction.

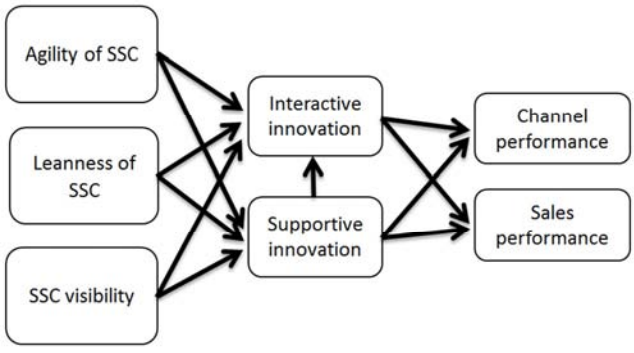


Figure 1. *The Framework of the Research.*

2.2. Abbreviations

Abbreviations such as SSC agility, SSC leanness, supply-

side chain SSC visibility, and SSC function are supply-side chain agility, supply-side chain leanness, supply-side chain visibility, and supply-side chain function, respectively. Amongst, SSC agility is the ability to rapidly overcome unexpected changes and continuously shifting environments in [10]. SSC leanness is defined as the elimination of excess waste, and set-up time to enhance productivity and quality in [11]. SSC visibility is defined as information access and the sharing of SSCs ([12], [13]). Furthermore, SSC function includes SSC agility, SSC leanness, and SSC visibility.

2.3. Relationship Between Supply-Side Chain Agility, Interactive Innovation and Supportive Innovation

Interactive innovation comprises new or different service offerings that customers enjoy and are surprised by [4]. Supportive innovation comprises the preparation involved in offering new services, such as gathering resources, the design process, and the implementation of services that customers do not notice, but nevertheless exist in [3].

Holcomb and Gligor [22] indicated a similar relationship between SSC agility and interactive innovation. SSC agility entails fast response to external environmental turbulence, and includes customer responsiveness; SSC agility thus, enhances the provision of service in [22]. For example, when a product is delivered to a customer, and it fulfills the customer's needs, the customer then becomes impressed with the service in [23]. For online shopping, e-commerce businesses compete for the shortest delivery times to facilitate customer satisfaction. Zara is a great example of agility; Zara claims that it can design clothing and deliver it to the customer in 15 days. Thus, customers are satisfied with Zara's service offering.

SSC agility could also strengthen market prediction and responsiveness in [24]. Through market prediction and responsiveness, stable production can be maintained through the detection of external instability in [25]. Stable production ensures that supportive innovation satisfies customer needs. Thus, we proposed H_{1a} and H_{1b} as follows:

H_{1a} : SSC agility is positively causally related with interactive innovation.

H_{1b} : SSC agility is positively casually related with supportive innovation.

2.4. Relationship Between Supply-Side Chain Leanness, Interactive Innovation and Supportive Innovation

Boyle, Scherrer-Rathje and Stuart [26] proposed that the just-in-time (JIT) variable could be used to improve quality, services, communication, and team spirit as well as reduce prices. Similarly, we propose that leanness could be used to improve services. Although, leanness is a concept from manufacturing, its technique and logic can still be applied to service innovation in [27]. Companies that have already applied leanness have more opportunities to use leanness in their services divisions in [28], similar to exercise: one does not simply work out the lower body, but the entire body striking a balance.

Agus and Mohd [27] claimed that leanness can be used to strengthen supportive innovation. Previous studies have shown that leanness can be applied to process-mapping and problem-solving to reduce time expenditures in service offerings, and further improve the service process in [28]. The process is similar to that of travel planning. Through planning, time and money to enjoy a journey can be saved, increasing the quality of the trip. For example, Thai-Town has implemented leanness in services and manufacturing to achieve an efficient service process; thus, every customer experiences the same service steps, and enjoys the same service quality. Thus, we proposed H_{2a} and H_{2b} as follows:

H_{2a} : SSC leanness is positively causally related with interactive innovation.

H_{2b} : SSC leanness is positively casually related with supportive innovation.

2.5. Relationship Between Supply-Side Chain Visibility, Interactive Innovation and Supportive Innovation

Through SSC visibility, information is collected from the external environment, and it is then integrated to achieve an internal competitive advantage in [29]. This concept correspond with self-regulation theory, which claims that external information can be assimilated as an internal resource to change original prototypes for accommodating unstable environments in [30].

Information access enables service flexibility, which further strengthens interactive innovation in [31]. Information collection enables companies to contact customers directly, such companies can then immediately respond to customer requests. Information access facilitates service design in [32]. Therefore, supportive innovation can be accomplished using service design. By analyzing information, more effective services for customer satisfactions can be designed. For example, Zara can quickly alter the product mix and the volume of inventory to more effectively meet customer needs by using the post office sale system to predict environmental changes and changes in customer demands. Thus, we proposed H_{3a} and H_{3b} as follows:

H_{3a} : SSC visibility is positively causally related with interactive innovation.

H_{3b} : SSC visibility is positively casually related with supportive innovation.

2.6. Relationship Between Interactive Innovation and Supportive Innovation

In this study, we inferred that supportive innovation facilitates interactive innovation for two reasons: (a) The construct sourcing-related changes from supportive innovation have been indicated to enhance service quality in [33], because it enables, both the company to attain supplementary services by sourcing these services. For

example, G2000 and China-trust Bank have collaborated on an ATM service: China-trust can thus offer a convenient service, and G2000 can offer ATM services. (b) Service production-related changes must be proposed to increase interactive innovation in [34]. This is because variable construct service-related changes implemented within the context of supportive innovation could facilitate the development of a creative environment for resolving problems. For example, Uniqlo united 7-eleven, which offers thermal clothing that convenient stores cannot provide, such as massive amount of sales, thermal clothing that are not found in convenience stores and famous cuisine from the Internet. Thus, we proposed H_4 as follows:

H_4: Supportive innovation is positively causally related with interactive innovation.

2.7. Relationships Between Interactive innovation, Channel Performance and SALES Performance

Service innovation contributes to sales performance, because it increases add value in [8]. The concept of interactive innovation corresponds with cognitive valuation theory, which argues that, once external incentives are stopped, performance drops drastically. However, internal incentives such as services could enables stable, durable, high-quality performance to be maintained in [21].

The concept of interactive innovation is a form of service innovation; thus, we inferred a relationship between interactive innovation and service innovation performance in [3]. Managers can work to maximize the value of service innovation, because a favorable service innovation design can induce customer purchases in [5]. In addition, service innovation can increase channel performance, by adding value. Adding value can increase profits in the cooperation of the channel, and increase market share, thus strengthening the relationship among channel members. Thus, we proposed H_{5a} and H_{5b} as follows:

H_{5a}: Interactive innovation is positively causally related with channel performance.

H_{5b}: Interactive innovation is positively casually related with sales performance.

2.8. Relationships Between Supportive Innovation, Channel Performance and Sales Performance

Supportive innovation evolves establishing perfect service environments and facilities. Service environments fortify brand identification, because such environments embody the meaning of the core brand in [35]. Brand identification further facilitates channel performance by increasing market dominance. Moreover, service environments also reinforce customer satisfaction, leading to more favorable sales performance in [36]. We applied goal attainment theory to channel and sales performance; goal attainment theory states goal-setting influences work performance. In other words, goals inspire in [37]. Thus, we proposed H_{6a} and H_{6b} as follows:

H_{6a}: Supportive innovation is positively causally related with channel performance.

H_{6b}: Supportive innovation is positively casually related with sales performance.

3. Study Methodologies

3.1. Measurements

We adopted several dimensions to measure each variable according to previous studies. We measured SSC agility based on responsiveness to change, flexibility in production volume, and flexibility in the manufacturing process in [38]. SSC leanness was measured based on products quality, lead time, and the elimination of waste in [39]. SSC visibility was measured based on visibility for sensing, for learning, for coordinating, and for integrating in [15]. Interactive innovation was measured based on image- or offering-related changes, service-delivery-related changes, and customization- related changes in [3]. Supportive innovation was measured based on service-production-related changes and sourcing-related changes in [3]. Channel performance was measured based on cooperation between channel members, and market dominance in [1]. Sales performance was measured based on sales performance outcomes, and behavior sales performance in [40].

3.2. Data Collection and Sampling Design

We used quota sampling as our sampling method in [41]. Taipei city was the sample area and whole Taipei city as the population. We divided the sample into eight clothing brands in Taiwan: Giordano, Net, Hang Ten, Uniqlo, Zara, Bossini, Baleno, and G2000. Different numbers of questionnaire administered was based on the number of stores operated by that brand. Of the questionnaires, 26%, 21%, 15%, 13%, 10%, 9%, 5%, and 1% were admitted to Hang Ten, Giordano, Net, Baleno, G2000, Bossini, Uniqlo, Zara, and others.

In addition, we collected the questionnaires form clerks and from customers equally in order to aggregate different viewpoints. We adopted dyad sampling, and asked the person in charge in each company deliver the questionnaires to their colleagues, and then to collect them. The clerks provided the questionnaires to complete individually. That is, customers or clerks will answer all the items in the questionnaires. All respondents placed their questionnaires into sealed envelopes and submitted them in a box. Finally, we had collected 400 effective questionnaires. Please also notes that there is not obvious difference between questionnaire for clerks and questionnaire for customers (F-value is 0.638, P-value is 0.425).

Table 1. *Quota Sampling Design and Dyad Samples.*

Company and Brand	Shops number	Ratio of shops	Number of questionaire	Questionaire for clerks	Questionaire for customers
Hang ten	202	26%	104	52	52
Giordano	166	21%	84	42	42
Net	115	15%	60	30	30
Baleno	100	13%	52	26	26
Bossini	83	10%	40	20	20
G2000	71	9%	36	18	18
Uniqlo	42	5%	20	10	10
Zara and others	6	1%	4	2	2
Total	785	100%	400	200	200

Notes: There are not obvious difference between questionnaire for clerks and questionnaire for customers (F-value is 0.638, P-value is 0.425).

4. Empirical Results

4.1. Reliability and Validity Analysis

We firstly assess the reliability jointly for all items of a construct by computing the composite reliability (CR). As to the composite reliability, which is computed as (sum of standardized loading)^2 / [(sum of standardized loading)^2 + (sum of measurement error)]. According to Fornell and Larcker [42], if the composite reliability is larger than 0.6, which indicates an acceptable fit of the data. Consequently, the higher composite reliability (CR) of latent constructs is; the easier we might examine the latent constructs. In our samples, calculating CR of agility of SSC, leanness of SSC, SSC visibility, interactive innovation, supportive innovation, channel performance, and sales performance are 0868, 0.740, 0.823, 0.807, 0.706, 0.705, and 0.819, respectively. We find that all the composite reliability including customer and dyad samples are larger than 0.6, meaning that an acceptable fit of the data in [42]. The results of composite reliability of each variable are in shown Table 2. We also use Cronbach's alpha coefficient to examine the internal consistency reliability of each construct. Cronbach's alpha coefficients of all items of the ten constructs from customer and dyad samples are greater than 0.7 and reveal a high internal consistency ([43], [44]). The reliability analysis indicates our questionnaire sample contains internal consistency.

We further find that the loadings on hypothesized factors are significant (p-value <0.05), R^2 is larger than 0.4 and all factor loadings substantial (exceeding 0.4) by structural equation model (SEM) model. Construct validity can be supported by examining the evidence of each construct involving appropriate items on their respective hypothesized components in a confirmatory factor analysis (CFA) in [45].

Besides, we calculate the average variance extracted (AVE) to confirm the discriminant validity in our study. If average variance extracted is larger than 0.4, then discriminant validity between these variables is achieved in [42]. We calculate all average variance extracted value (AVE) of agility of SSC, leanness of SSC, SSC visibility, interactive innovation, supportive innovation, channel performance, and sales performance are 0.688, 0.489, 0.542, 0.582, 0.545, 0.544 and 0.694, respectively. We find that all AVE is larger than 0.4, and reveal that the variables can correctly measure what this variable means and hold discriminant validity (see Table 2). Also, the diagonal elements all are greater than the off-diagonal elements in the corresponding rows and columns and represents that our study holds discriminant validity in [46]. For example, the variable agility of SSC has the average correlation with itself 0.546, which is larger than that of all the other correlations like 0.439, 0.439, 0.422, 0.392, 0.384, 0.450. Hence, agility of SSC owns discriminant validity. The validity analysis proved our questionnaire has kept its quality, and could interpret the meaning we want to deliver.

Table 2. *Results of Reliability and Validity Analysis.*

Construct	Item	Cronbach's α	Cronbach's α if item deleted	Loading	Composite Reliability (CR)	Average Variance Extracted (AVE)
		0.868			0.868	0.688
Agility of SSC	Responsiveness to change	.	.822	0.829		
	Flexibility in production volume		.788	0.841		
	Flexibility in manufacturing process		.833	0.823		
		0.729			0.740	0.489
Leanness of SSC	Product quality		.619	0.690		
	Lead time		.581	0.778		
	Elimination of waste		.726	0.621		
		0.814			0.823	0.542
SSC visibility	Visibility for sensing		.724	0.839		
	Visibility for learning		.723	0.779		
	Visibility for coordinating		.819	0.637		
	Visibility for integrating		.785	0.672		
		0.811			0.807	0.582
Interactive innovation	Image or offering related changes		.759	0.799		
	Service delivery related changes		.698	0.754		
	Customization related changes		.765	0.736		

Construct	Item	Cronbach's α	Cronbach's α if item deleted	Loading	Composite Reliability (CR)	Average Variance Extracted (AVE)
Supportive innovation		0.725			0.706	0.545
	Service production related changes		-	0.727		
	Sourcing related changes		-	0.750		
Channel performance		0.703			0.705	0.544
	Cooperation between channel members		-	0.740		
	Market dominance		-	0.736		
Sales performance	Outcome sales performance	0.815	-	0.794	0.819	0.694
	Behavioral sales performance		-	0.871		

Model Fit Indicator	Criterion	Estimated Results
χ^2/df	ranges 2 to 5	4.234
Comparative fit index (CFI)	> 0.9	0.931
Normed fit index (NFI)	> 0.9	0.912
Goodness of fit index (GFI)	> 0.9	0.886
Adjusted goodness of fit index (AGFI)	> 0.8	0.843
Root mean square residual (RMSR)	< 0.05	0.028
Root mean square error of approximation (RMSEA)	< 0.08	0.078

4.2. Results of Model Fit and Structural Model

In our model, we adopt multiple fitness indices to examine the validity of the model and fit indices of the proposed measurement model are shown in Table 3. First, Chi-square is 584, degree of freedom is 138, and we calculate $\chi 2$ /df is 4.231, which ranges from 2 to 5 and $\chi 2$ /df is acceptable in [47]. Second, we calculate GFI and AGFI, they are 0.886 and 0.843 in our model, respectively. GFI and AGFI could be lower than expected (0.9), since our questionnaires consists 57 questions, and led to our GFI and AGFI value are not higher than 0.9 (Jöreskog and Sörbom, 1986). Note that we can adopt the CFI (0.931) and NFI (0.912) to judge the validity of the data, since these indices are above 0.9 in [48]. Furthermore, we use RMSR and RMESA to provide information about the fit of the model with unknown but optimally chosen parameter values for the population covariance matrix, if it is available in [45]. In our study, the RMSR (root mean square residual) are 0.028 which are both less than 0.05. The RMSEA (root mean error approximation) are 0.078 which are both less than 0.08. The results of RMSR and RMSEA indicate a good fit in [44].

We examine whether empirical results match the hypotheses or not. Table 3 displays the structural model with coefficients and significant relationship between variables and almost all of the variables are followed the hypothesized direction. These results provide the reasonably evidence for study model. The agility in structural equation model has negatively effect on both interactive innovation (H_{1a}: β_1 = -0.07, t-value = -4.39) and supportive innovation (H_{1b}: β_2 = -0.28, t-value=-1.513). Leanness has positively effect on both interactive innovation (H_{2a}: β_3 = 0.46, t-value = 1.981) and supportive innovation (H_{2b}: β_4 = 0.67, t-value=2.667). Visibility has positively effect on both interactive innovation (H_{3a}: β_5 = 0.27, t-value = 1.855) and supportive innovation (H_{3b}: β_6 = 0.51, t-value=2.892). Supportive innovation has positively effect on interactive innovation (H_4: β_7 = 0.35, t-value = 2.568). Interactive innovation has positively effect on both channel performance (H_{5a}: β_8 = 0.40, t-value = 1.767) and supportive innovation (H_{5b}: β_9 = 0.49, t-value=2.569). Supportive innovation has positively effect on both channel performance (H_{6a}: β_{10} = 0.40, t-value = 1.683) and supportive innovation (H_{6b}: β_{11} = 0.46, t-value=2.339). The results indicate at Table 5.

We find that two of the hypothesis do not present significant in SEM results. This two hypothesizes (H_{1a} and H_{1b}) are respectively between agility of supply chain and interactive innovation, supportive innovation. This result is contrary to Holcomb and Gligor [49], since SSC agility is searching for offering a fast service delivery to response external environment turbulence, rather than producing an ideal product. This may not help to strengthen the potentiality of interactive innovation. Furthermore, SSC agility could maintain a stable production level by strengthen the function of market prediction and responsiveness in order to detect outside turbulence. However, this logical deduction process can be argued because the conflict may occur between fast service delivery and stable production. That is, the supportive innovation may not attained, though SSC agility efforts.

Table 3. *Empirical Results of Lisrel Model.*

Hypothesized Path	Coefficient	T-value	P-value
H_{1a} : Agility → Interactive innovation	β_1 = -.007	-4.390	0.657
H_{1b} : Agility → Supportive innovation	β_2 = -0.28	-1.513	0.146
H_{2a} : Leanness → Interactive innovation	β_3 =.46	1.981	0.051*
H_{2b} : Leanness → Supportive innovation	β_4 =.67	2.667	0.009**
H_{3a} : Visibility → Interactive innovation	β_5 =.27	1.855	0.055*
H_{3b} : Visibility → Supportive innovation	β_6 =.51	2.892	0.004**
H_4 : Supportive innovation →Interactive innovation	β_7 =.35	2.568	0.011**

Hypothesized Path	Coefficient	T-value	P-value
H_{5a}：Interactive innovation → Channel performance	β_8 =.40	1.767	0.082*
H_{5b}：Interactive innovation → Sales performance	β_9 =.49	2.569	0.016**
H_{6a}：Supportive innovation→ Channel performance	β_{10} =.40	1.683	0.087*
H_{6b}：Supportive innovation→ Sales performance	β_{11} =.46	2.339	0.016**
Note: Based on one-tailed test: for P-value smaller than 0.1 (*); for P-value smaller than 0.05 (**); for P-value smaller than 0.01 (***).			

4.3. Rival Model Analysis

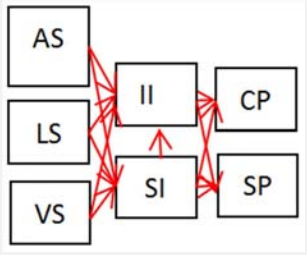
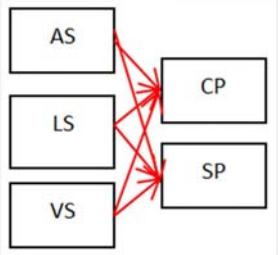
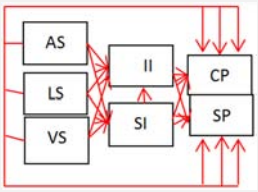
Table 4 shows that rival models analysis. Bagozzi and Yi [44] provides the necessity for a rival model and Sharma [50] suggests use the significant ratio to compare and test the validity of rival model. Bollen and Long [47] used the value of GFI, CFI, RMSEA and related indices of path coefficient to analyze rival model.

Rival model 1 specifies the direct effects between SSC strategy and performance without mediators which is based on the structural school framework (e.g., [51], [52]).

And rival model 2 is to consider if the causality among mediators is really needed which is originated from the comprehensive school framework (e.g., [53], [54], [55], [56]). Thus, our original model can be deemed as the interactive school framework.

Compared to original model, the significant ratio of the original model (81.8%, nine of eleven path is significant) is greater than rival model 1 (66.7%, four of six path is significant). The direct effect from SSC strategy to performance is not effective than the indirect effect with mediators interactive innovation and supportive innovation in original model. Similar results is in rival model 2 (41.2%, seven of seventeen path is significant). From the above comparison, we find that the study model is better than two rival models.

Table 4. *Rival Models Comparison.*

Measurement Indices	Original Model	Rival Model 1	Rival Model 2
AMOS Structural Model			
Significant Ratio	81%	50%	35%
	AS→II Reject	AS→CP Non-Reject	AS→II Reject
	AS→SI Reject	AS→SP Non-Reject	AS→SI Non-Reject
	LS→II Non-Reject	LS→CP Non-Reject	AS→CP Reject
	LS→SI Non	LS→SP Non-Reject	AS→SP Reject
	Reject	VS→CP Reject	LS→II Reject
	VS→II Non-Reject	VS→SP Reject	LS→SI Non-Reject
	VS→SI Non-Reject		LS→CP Reject
	SI→II Non-Reject		LS→SP Reject
	II→CP Non-Reject		VS→II Reject
	II→SP Non-Reject		VS→SI Non-Reject
	SI→CP Non-Reject		VS→CP Reject
	SI→SP Non-Reject		VS→SP Reject
			SI→II Non-Reject
			II→CP Reject
			II→SP Non-Reject
			SI→CP Non-Reject
			SI→SP Non-Reject
χ^2/df	584.308/138=4.234	323.169/68=4.752	570.464/132=4.322
CFI	0.931	0.943	0.933
GFI	0.886	0.913	0.889
AGFI	0.843	0.865	0.840
RMSEA	0.078	0.084	0.079
RMSR	0.028	0.029	0.027

5. Discussions and Conclusions

Based on the recursive system model, we conducted empirical analysis and found that all of our hypotheses were significant. This means that SSC function enhances channel performance and sales performance, and that interactive innovation and supportive innovation act as mediators. Furthermore, structural equation modeling confirmed that SSC functions other than SSC agility increase channel and sales performance through the mediators of interactive innovation and supportive innovation. We also applied a rival model to ensure that the model we used was more effective.

We determined a main path: SSC leanness has a positive

causal relationship with supportive innovation, and supportive innovation has a positive causal relationship with channel performance and sales performance. The garment industry can incorporate these results to improve performance. *Figure 2 shows the results.*

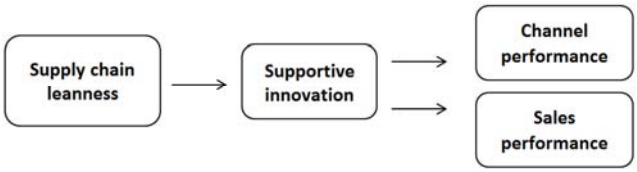


Figure 2. *The Main Path of Our Study.*

SSC leanness relates chiefly to process-mapping and problem-solving. Using all resources ensure optimal performance: for example, by incorporating SSC leanness, a supplier can produce a product cheaply and maintain quality in [57]. This concept of leanness could also be applied to supportive innovation. Arranging service processes can ensure that they are efficient, and that they flow effectively. All customers receive the service they have ordered, and instances of waiting are reduced. One essential features of this study is that we present an alternative for enhancing channel and sales performance; otherwise, typically applied marketing strategies for improving channel and sales performance must be applied in [58].

Supportive innovation is implemented to contribute to favorable service environments in [59]. Every product must be situated in a suitable place; constructing cozy service environments can help increase brand identification and channel performance in [60]. Sales performance may be increased by ensuring that service environments, for example, have a sufficient number of fitting rooms, and enough cashier to prevent queues from forming; this can strengthen customers' shopping mood.

In the garment industry, agility is crucial, but it seems that consumers' decisions are motivated by price and quality. Therefore, SSC leanness is relatively more critical than SSC agility and SSC visibility. Having high-quality clothing is insufficient; supportive innovation, rather than interactive innovation, may be considered more critical in [28]. Many Taiwanese customers dislike clerks follow them and to advertise or promote articles of clothing: rather, they enjoy being alone, and talking to clerks when necessary. Therefore, supportive innovation in the garment industry seems to be crucial in Taiwan. Through cloth-placing and hardware-setting in shopping areas, supportive innovation can increase channel member performance and sales performance.

We suggested that income level and/or education level can be regarded as a positioning and segmentation strategies. Targeting low-income or high-income customers could yield a more favorable channel performance by considering supportive innovation. In other words, if a dealer wants to enhance channel performance, low-income or high-income customers should be targeted, and SSC leanness should be used to reinforce supportive innovation strategies. In addition, targeting customers with low and high education backgrounds can enable sustaining a favorable sales performance. Sales performance may be improved by segmenting consumers based on their education level, and this is especially applicable to consumers from higher/lower education background; subsequently, SSC leanness can be used to reinforce the strategies of supportive innovation in [7]. Regarding whether our model is applicable to other service industries, validation from further researches is necessary.

Note that Common method variance is a research limitation of our study. Podsakoff, MacKenzie, and Lee [61] argued that common method variance while self-reported surveys are employed as a measurement tool is a emerging issue in behavioral research. The respondents rated their perception of the predictor variable and criterion variable, and the exogenous variables and endogenous variables were gathered from the identical rater or source. We employed a temporal separation by interpreting a cover picture and background between the predictor variable and criterion variable to create a time lag to obtain that the measurement of the predictor variable was not directly linkaged to the criterion variable in [61]. However, our study design (temporal separation) may not adequately address the problem of common method variance by, decreasing the perceived relevance of previously recalled information in his/her short-term memory. This would be made a modification in the future study

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