Exploring the Nexus between the Organizational Entrepreneurship, Supply Chain Integration and the Performance Outcomes of Thai Textile Industry

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***Abstract*-With the increase of importance for collaboration, intelligence, operational integration with partners in supply chain and inter-organizational partnership, there has been change in the role of supply managers in improving corporate performance. This is reflected in the research related to firms and entrepreneurial settings. The mechanism identified in previous research studies along with the entrepreneurial skills and role of supply management have been explored in this research study. The integration of firm with its suppliers is contributed by entrepreneurial behavior as reflected by the results, which are in line with theoretical framework. This improves the performance of firm. Managers, who aim at improving performance, can achieve high performance through changes in culture and recruitment of management supply function to an entrepreneurial orientation. The implementation of organizational entrepreneurship concept to supply management theory is important. It has been suggested by this research that there is need for further investigation to give a flexible approach for using entrepreneurial constructs to define principles of supply management in the collaboration of buyer and supplier, organizational outcomes and relational capital. The implementation of organizational entrepreneurship concept to supply management theory is important. It has been suggested by this research that there is need for further investigation to give a flexible approach for using entrepreneurial constructs to define principles of supply management in the collaboration of buyer and supplier, organizational outcomes and relational capital.**

Keywords: *Supply chain, entrepreneurship, Thailand*

1. Background

Every firm aims at achieving competitive advantage in this dynamic global environment. For this, firms are moving to supply management (SM) as a basic competence strategy to achieve competitive advantage. Hybrid governance structures differentiate the firms with world class and proactive SM programs. Market supply is evaluated, opportunities are identified, and market intelligence is collected when mangers work closely with stakeholders in business. Managers integrate with suppliers on internal business requirements for value creation [1]. Irrespective of these improvements, SM becomes a support function in several firms. Other than cost reduction through negotiation and transaction efficiency, it has some strategic value as well [1]. Some recent research studies have empirically identified the contribution of SM in competitive advantage through strategic sourcing, market intelligence and management of supplier [1, 2]. It has been claimed by recent researches that supply managers should become proactive in sourcing global opportunities, exploring new technologies, and implementing them within the organizations.

Supply managers work with the stakeholders in hybrid governance structures and gather market intelligence, explore opportunities for supplier integration, create value and establish collaboration with the partners in supply chain [1, 2]. The researchers working on corporate entrepreneurship (CE) may find these qualities familiar. These are the common characteristics of entrepreneurs. This relation has been explored further in the study to clear the role of entrepreneur related to certain behaviors linked with strategic SM for value creation. It is interesting to know whether the successful functions of SM act in an entrepreneurial fashion to manage groups of internal stakeholders and external suppliers. Therefore, SM can be defined as the sourcing of products and services from the first and second tier. The Thai textile sector accounts for almost 5 percent of the Total GDP

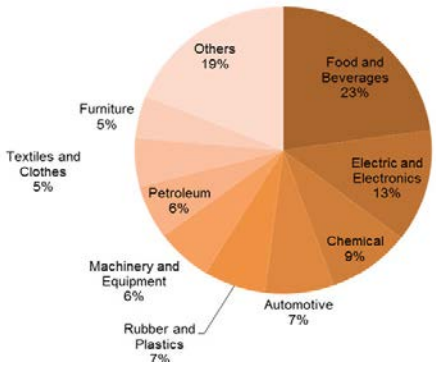

Figure 1. Share of manufacturing sector in Thai GDP
Source: National economic and social development board Thailand

For firm of every size, entrepreneurial behavior is important to achieve competitive advantage. Table 1 shows the specific factors, which are applicable to functions of SM. The literature on SM is crucial in the development of some theoretical aspects such as the use of theory of CE [3]. The need for entrepreneurial behavior has been explored by recent researches in supply networks and SM. Respondents (purchasing professionals) were asked to explore entrepreneurial organizational traits in a survey. The entrepreneurial organizational traits include willingness to take risks, strong top leadership, customer relations, hands-on management, and market aggressiveness. Some researchers followed the work of Morris and Calantone. It was found by the researchers that better adaptation decisions are made with entrepreneurial orientation, which allows supply chain to react to the opportunities in the market through agility.The four basic properties [1, 2] related to mature organizations SM are aligned with these attributes. These include supplier integration, supply market intelligence, and research.

2. Hypothesis development

It was noted by the previous researchers that environmental scanning is the key attribute for entrepreneurs. This is regarded as the learning managerial activity about the trends and events in the environment of organization [4]. The roots of the concept of scanning were originated from the ancient Greeks. It was believed by Greeks that sufficient intelligence is required for success and making good strategic decisions. Managers are provided with information by scanning regard the trends and events of the organizational environment. This supports in identification of opportunities. In recent times, scanning has been considered as an element for formation of network within the entrepreneurial settings. It was highlighted by Venkataraman [5] that trust, mutual interdependence, reputation are highly important for analyzing the control over these settings. The pre-conditions were identified by Larson for integration, exchange, conditions to build, and controlling mechanism as the way of formulating network. Supply chains are allowed through an entrepreneurial orientation to respond to opportunities in market with agility and flexibility. The latter two elements have been emphasized in this research. There is need for mutual economic benefits, a firm's role in initiating collaboration and a trial period as per the conditions [5]. The collaboration or engagement is based on the previous set of conditions for exchange regarded as expectations, trust, rules, reciprocity, and procedures. The financial performance and enterprise sourcing performance is influenced by both the supplier integration and cross-enterprise integration (i.e. elements of entrepreneurial behavior). The competition based on capability in which the important strategic assets are trans-organizations, alliance networks are designed by the enterprising firms. The key supply factors can receive benefit including sustainability, better performance, and difficult alliances to duplicate [6]. The need for entrepreneurial orientation has been anticipated by our model to identify market opportunities as a condition for mutual exchange [7]. This improves risk taking behavior, pro-active behavior, and innovation. Critical insights are developed through a seven-step process of strategic sourcing such as capacity, pricing, offshore suppliers, socio-economic impacts, low cost sourcing conditions of a country, influence on market conditions by mergers and acquisitions. Losses have been incurred in the shareholder value of firm by up to 20 per cent through the influence of major supply disruptions [8]. Firms become able to identify the need for capability of scanning due to increase in commodity prices, which allow the managers in supply to influence the allocation of internal resources, decisions of planning, and development of strategic processes. The first hypothesis shows the influence of knowledge of supply market on internal strategic planning.

H1: Supply chain market intelligence (SCINT) has significant impact on the cross-enterprise integration (CEI)

Another condition was identified by Venkataraman [5] for network information, which is the ability to develop and support strong association with suppliers for product sourcing, knowledge acquisition, cost saving, and frequent communications. Mutual expectations and trust are established through such dialogues. It has been suggested by the entrepreneurial orientation perspective that firms become able to entrepreneurial innovation to predict the market. This is often linked with learning orientation, in which market opportunities are not missed by the firms. The investment and exchange of knowledge in the specific assets of relationship is claimed to occur under the conditions, in which the expected value of investment and knowledge inflows is greater than the expected loss for spill over knowledge to the rivals [6, 9]. The second hypothesis has been formed on the identification of external resources facilitated by the implicit nature of

information from the external sources through external market intelligence.

H2: Supply chain market intelligence (SCINT) has significant impact on the supplier integration (SN)

The need of control and integration is reflected in our second research hypothesis [5], which is the final factor in loop closing of alliances in entrepreneur. The integration of operations to increase connection and communication between the administrative management of every firm is referred as control and integration. These include the control and integration using social control and relations, shaping and controlling behavior.

The ability to influence the outcomes is increased for integration in every case. This is done through social and operational interaction. The concept of planning locus is related to the influence that considers the involvement of employee in the process of planning firm's strategies. A high involvement level of employees in the process of planning is reflected through a deep locus that is similar to the team orientated planning of Japanese-style. Most of the literature on entrepreneurship reflects the influence of strategic decisions drive crucial factors regarding the supply base for decision-making [7]. The active participation of lower and middle level managers in supply are legitimized through a deep locus in the process of planning [10]. Market orientation increases with entrepreneurship that enhances the learning of organization and its performance. The diversity of viewpoints is maximized along with the diverse views in the process of strategic planning [11, 12]. There exist a positive association between intensity of CE and deep locus of planning. This result in the similar influence on internal process of strategic planning and supply market planning locus [13]:

H3: Supply chain market influence (SCINF) has significant impact on the cross-enterprise integration

The focus of entrepreneurial literature is on the complexity of learning and rational processes, which is based on the external social networks. Therefore, these processes are critical for gathering particular skills. This relation has been extrapolated to pose that credibility is built through SM as a value-added resource of the process of strategic planning. In this way, credibility can be gained with external suppliers [14]. The ability of SM to market knowledge, relational skills, internal communication, and coordination influence these network capabilities. A multidimensional concept of entrepreneurship has been recognized as proactiveness, which is related to the concept of entrepreneurship. This concept has been embodied in the conceptualization of integration of cross enterprise. New technologies, products, and management techniques are introduced to shape the environment in a proactive approach. It was explained by Lumpkin and Dess [10] that new opportunities are explored by a proactive firm to avail them. When transparency is offered by boundary spanners to decision makers, this occurs to some extent. This influence the learning and entrepreneurial actions within the supply chain. A crucial role is played by supply managers in the product design teams. The measurement of influence of these decisions can be done when suppliers participate in the team.

A manager was interviewed said that the suppliers' input is not listened by our engineering team, but several opportunities are given them to do so. The participation of suppliers on product development meetings is resisted by engineers [15]. Supply managers having strong relation with top management will have sufficient acumen to argue for increased participation of suppliers in procurement, designing, production, and integration of system. It has been posed by our model that high cross-enterprise relations of a firm will encourage suppliers to participate in the process of product and organizational design.

H4: Supply chain market influence (SCINF) has significant impact on the supplier integration (SN)

It is supported by research that the performance of a firm and SM improves through entrepreneurial behavior. The idea that value is created by firms through proactive behavior is supported by several researchers. Oh and Oetzel [16] presented the argument that firms can be benefited through formation of proactive network. This can improve the performance of firm by increasing restrictions on entry to the strategic groups. Therefore, it reduces the competition intensity being experienced by the firms. Firms can receive increased pay-off through multiple sources such as market, competition, and technology. This can develop relations with partners to develop new processes and competencies within the supply chain.

Through multi-echelon influence, these factors have been operationalized in the research model. There is a direct influence of SM on performance of enterprise sourcing. The primary influence is through value added streams. The first involves the direct savings cost linked with reduced cost of sold goods and enhanced influence of shareholder. The second is the increase in supplier integration for the development of new technology, process, and product linked with high market share [1, 2]. The third is security of shareholder value via avoiding the destruction of shareholder value and supply risk management [8]. It can be said that internal planning processes are influenced by the SM along with suppliers' integration into the team processes. This can have a measurable influence on improving the buyer performance through reduction in time cycle, improvement in product quality and product design. Through supply market intelligence, suppliers can be identified in a better way and it can become aligned with the team processes of focal firm over a period of 2-3 years through the management liaisons of supplier relations. Therefore, the related improvements in the outcomes have been posited

in this research. The concepts have been formulated in the following research hypotheses:

H4: Cross enterprise integration (CEI) has significant impact on the sourcing enterprise performance (SEPR)

H5: Supplier integration (CEI) has significant impact on the sourcing enterprise performance (SEPR)

3. Method and measurement

Methodology is an important step in every research. This step is most crucial and should be accordance with research problem. The proposed research design is based on cross-sectional research and quantitative research approach. The current study has adopted the survey method to answer the research questions raised in the study. The SEM PLS is used to analyze the data. According to Comrey and Lee (1992), the sample size of respondents of 500 is very good, 300 is good, 200 is satisfactory,100 is weak and of 50 is weaker. However, the respondent's sample size of 1000 is substantial. Additionally, according to Krejcie and Morgan (1970), if the population is above 100,000 the sample size should not be less than 382. In the current study the employees of automobile companies are above 100,000. Thus, by following both recommendations, the current study used 1000 sample size.

3.1 Operationalization of variables

An extensive literature review has been carried out to measure the theoretical constructs. A seven-point likert scale is used where Point 1 reflected not at all and point 7 reflected very great extent. The items used in the questionnaire have been shown in Appendix. The scales formulated by Carr, House [17] and Carr and Smeltzer [18] were used to for supply market intelligence to determine the function ability to monitor supplier market changes, ability to lower the business costs and improve technical capabilities. The scale developed by Carr and Smeltzer [18] was used to determine SM. The researchers determined the level of support by top management and importance of strategy for the top managers. A three-item scale was used to determine cross-enterprise integration, which was developed by Narasimhan and Das [19]. The researchers determined the level to which the integration of purchasing function is done with other functions in the firm such as improvement of processes, product design, and strategy making. A three-item scale was used to measure the supplier integration, which was redeveloped by Narasimhan and Kim [20]. The level of exchange of information was included in the items through information technology, production, procurement, and level of supplier involvement in designing product.

A three-item scale was used to measure the performance of sourcing enterprise. The item scale was developed by Kotabe, Martin [21] and the level of relationship was assessed over the previous 2-3 years, which resulted in the product design improvement, reduction in lead-time and product quality for the buyer firm. Based on the investment return on sales and growth of profit, the financial performance was determined as compared to rival firms [18, 22]

4. Data analysis

Many contemporary studies have viewed SEM not only as a statistical procedure but also as a process which involves few stages: (1) conceptualizing the model (2) parameter identification (3) model specification (4) estimation of model (5) modification of model and (6) evaluation of parameters [23]. These steps are necessary when carrying out SEM analysis. They are hereby explained in succession.

The first stage of any SEM analysis should be for the researcher to conceptualize the model, this entails pointing out which relationships are hypothesized to exist among observed and latent variables. Theoretical model is based on underlying theory that gave rise to the variables being investigated and should be focused on literatures and knowledge on the subject matter. Ideally, in SEM applications, the operationalized theories assume the form of measured variable path analysis model, that is hypothesized structural or causal relationships among variables that are directly measured. Before testing of hypotheses, the PLS-SEMis employed to analyze the outer model. A method by Chuang, Shen [24] was followed to assess the model.

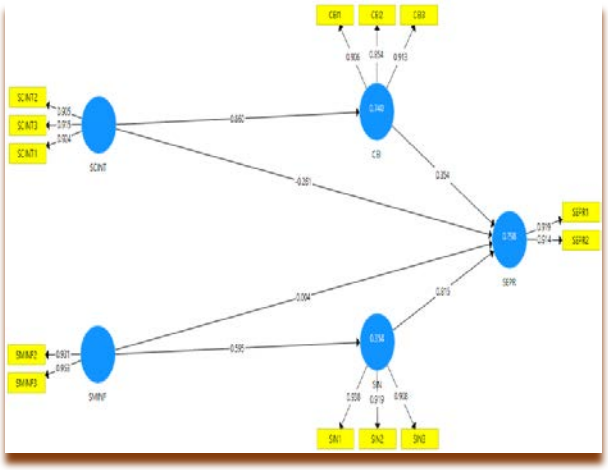

Figure 2. Outer model

Table 1. Outer loadings

	CEI	SCINT	SEPR	SIN	SMINF
CEI1	0.906				
CEI2	0.854				
CEI3	0.913				
SCINT2		0.905			
SCINT3		0.915			
SEPR1			0.919		
SEPR2			0.914		

SIN1		0.938		
SIN2		0.919		
SIN3		0.908		
SMINF2			0.931	
SMINF3			0.953	
SCINT1	0.924			

Analyzing the convergent validity requires the simultaneous testing of three criteria i.e. composite reliability, factor loading, and the average variance extracted. Firstly, the assessment of loadings for all items indicated that all factor loadings are above 0.5, with significance level of 0.01 percent, showing an acceptable level according to the literature. Secondly, the composite reliability is tested which refers as the extent to which a group of items invariably explains the latent variables. The table contains the values for composite reliability and Cronbach Alpha. The range of Cronbach alpha came out to be 0.890-0.964, and range of composite reliability was 0.759-0.971, which was higher than the recommended range [25] i.e. 0.7. The results proclaimed and confirmed the convergent validity. Furthermore, the AVE is also obtained for the outer model in order to assess the convergent validity. It explains the average variance extracted for a set of items in comparison with the shared variance, involving measurement errors. In addition, it determines the variance that the indicators cover in comparison with the variance which is assigned with the measurement errors. Thus, according to Castaño, Méndez [26] if the value of the average value extracted reaches the level of 0.5, then it indicates the adequate convergence of this group of items to determine the required construct. The range of AVE for present study came out as 0.510-0.919, exhibiting a good validity of the measures.

Table 2. Reliability

	Cronbach's Alpha	rho_A	CR	AVE
CEI	0.870	0.873	0.921	0.795
SCINT	0.902	0.902	0.939	0.837
SEPR	0.810	0.810	0.913	0.840
SIN	0.911	0.912	0.944	0.850
SMINF	0.875	0.898	0.941	0.888

Developing a discriminant validity is essential to declare the construct validity for the outer model. Therefore, testing of discriminant validity is crucial before the hypotheses testing. A discriminant validity measures the level to which the items of the model differentiate from their constructs. Similarly, the discriminant validity indicated that a number of 111 items have employed different constructs that exhibited no overlapping. Moreover, according to Vaidyanathan [27] the shared variance of the measures that exists among each construct must be higher than the shared variance between the different constructs. The diagonal elements of the matrix turned out to be greater than the elements of rows and columns.

Table 3. Validity Matrix

	CEI	SCINT	SEPR	SIN	SMINF
CEI	0.891				
SCINT	0.860	0.815			
SEPR	0.761	0.781	0.817		
SIN	0.748	0.755	0.876	0.822	
SMINF	0.839	0.838	0.767	0.795	0.942

After the goodness of fit test for the outer model, the hypotheses were tested to assess the nature of association between the variables. The VIF and tolerance of all the variables lie in the range of 2.278-4.122 and 0.243-0.439 respectively.

Table 4. VIF

	VIF
CEI1	2.698
CEI2	1.915
CEI3	2.781
SCINT2	2.617
SCINT3	2.927
SEPR1	1.861
SEPR2	1.861
SIN1	3.762
SIN2	3.037
SIN3	2.838
SMINF2	2.531
SMINF3	2.531
SCINT1	3.159

Next step is to examine the inner structural model which is shown in the following figure

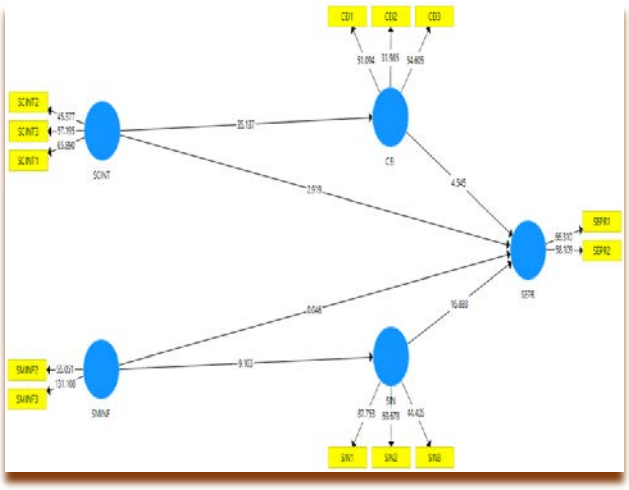

Figure 3. Inner Model

Using a re-sampling iteration of 5000, t-values were calculated [28]. A sample of 5000 bootstrap was selected to ensure the empirical sampling distribution by every parameter model and standard deviation of the distribution to be used as empirical standard error [29]. The one-tail test was done, and the critical values were used to

determine the level of significance. The critical values were 2.33, 1.65 and 1.28 at significance level of 1%, 5% and 10% respectively.

Table 5. Direct relationship

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
CEI -> SEPR	0.354	0.358	0.078	4.545	0.000
SCINT -> CEI	0.860	0.859	0.024	35.137	0.000
SCINT -> SEPR	0.043	0.046	0.085	0.513	0.304
SIN -> SEPR	0.815	0.810	0.048	16.883	0.000
SMINF -> SEPR	0.489	0.486	0.093	5.276	0.000
SMINF -> SIN	0.595	0.596	0.065	9.103	0.000

Under multivariate analysis, the coefficient of determination shows that the predictor variables explain the endogenous variable. Thus, the magnitude of R^2 explains the predictive power of explaining endogenous variable in the model. Furthermore, following Belanche, Casaló [30] the sample was reapplied in order to declare the models' predictive validity. Partial Least Square technique is used as it is an appropriate and very well software for reusing the sample technique [31].

Table 6. R-Square

	R Square
CEI	0.740
SEPR	0.798
SIN	0.354

It is important to determine the predictive relevance of the model after the determination of effect size. For this, the predictive capacity of the model is examined. As noted by Hair Jr, Hult [29], the value of predictive relevance is reflective through Q2.

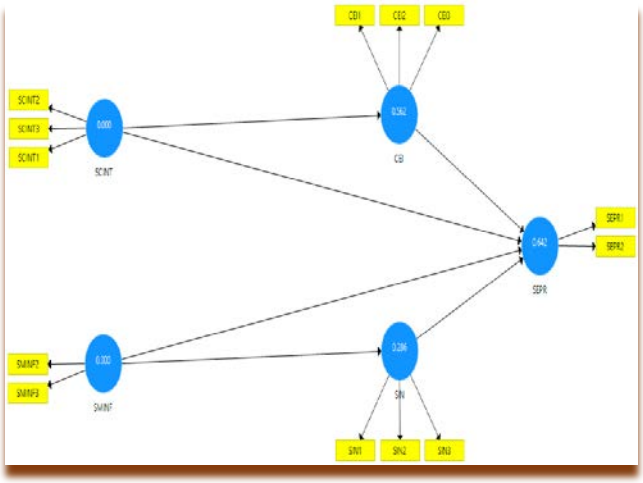

Figure 4: Q-square

Therefore, suggested by Hair, Sarstedt [28] that the value of Q 2 is calculated through the process of blindfolding.

Table 7. Q-square

	SSO	SSE	Q^2 (=1-SSE/SSO)
CEI	651.000	285.348	0.562
SCINT	651.000	651.000	
SEPR	434.000	155.588	0.642
SIN	651.000	464.924	0.286
SMINF	434.000	434.000	

5. Discussion and Conclusions

Strong empirical support has been provided by the results for the relation of increased cross-enterprise integration and supply market intelligence, which is a crucial attribute for entrepreneurial orientation. Moreover, it was supported by hypothesis H1b that role of market supply intelligence on the occurrence of integration of supplier into the production (team-based) and processes of product development. It has been emphasized by the results that innovation, proactive behavior, and risk taking is improved by the SM role [15]. The SM introduced new thinking into the internal processes based on teams. Benefits are received by the entrepreneurial firms, which recognize and use synergistic opportunities of value creation with the partners in supply [6, 32].

The influence of entrepreneurial behavior on SM has been determined in the second hypotheses. This is closely linked with the attributes of entrepreneurship of planning locus and risk tolerance. The construct was operationalized as organizational SM. It was found by the results that the influence of management is a good predictor of the level of participation with other function of business i.e. planning activities. It was not a good predictor of the suppliers' ability of integration in the process of firm's decision-making. The financial performance and enterprise sourcing performance is influenced by both the supplier integration and cross-enterprise integration (i.e. elements of entrepreneurial behavior). The competition based on capability in which the important strategic assets are trans-organizations, alliance networks are designed by the enterprising firms. The key supply factors can receive benefit including sustainability, better performance, and difficult alliances to duplicate [6].

The development of knowledge and skills, increased options for partnership and cumulative learning can be supported through effective supplier integration, which leads to additional value creation [6, 33]. New skills are learnt and suppliers' resources are leveraged for creating value. The shareholder's value and high market returns are created by the competitive factors through reduction in lead-time, improvement of product quality and product designs. The previous researches support the relation between learning for SM improvement and entrepreneurial orientation in terms of quality and time cycle [34]. Excellent capabilities for SM have been

developed by the companies, who have recognized these factors. Such companies have implemented higher supplier integration. Dramatic financial performance has been shown by firms including Samsung, Cisco, Toyota, etc. as compared with the rival firms.

The results give several implications for the managers as well. The firms aiming at the development of improved supplier collaboration should train managers having strong orientation for the internal relation with stakeholders. This would result in creditability in the form of employee recruitment having strong knowledge of supply market. These employees are able to functional teams and business unit in the form of negotiation skills, contracting, supply market intelligence, and strategy of category management. Some other researchers have worked on the significance of relationship management skills, leadership skills and team-building skills [35]. These researchers offer a strong support for future studies in the emerging fields. Another implication for the managers is the more entrepreneurial behavior shown by the SM organizations.

It has been agreed by some managers that free actions are allowed to category managers in sourcing strategies, developing supplier relations and innovation. Category teams are allowed to change organizational cultural in an entrepreneurial way, which is a new idea. Additional support is required for establishing it as a practice in future. It is in emerging stage to view SM through theoretical lens of entrepreneurial concepts. However, the results of the study are in line with several studies and gives credibility to this orientation. A strong base has been provided by the results of this study for developing SM leadership through entrepreneurial behavior.

With the increase of importance for collaboration, intelligence, operational integration with partners in supply chain and inter-organizational partnership, there has been change in the role of supply managers in improving corporate performance. This is reflected in the research related to firms and entrepreneurial settings. The mechanism identified in previous research studies along with the entrepreneurial skills and role of SM have been explored in this research study. The integration of firm with its suppliers is contributed by entrepreneurial behavior as reflected by the results, which are in line with theoretical framework. This improves the performance of firm. Managers, who aim at improving performance, can achieve high performance through changes in culture and recruitment of management supply function to an entrepreneurial orientation. The implementation of organizational entrepreneurship concept to SM theory is important. It has been suggested by this research that there is need for further investigation to give a flexible approach for using entrepreneurial constructs to define principles of SM in the collaboration of buyer and supplier, organizational outcomes and relational capital.

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