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An investigation on the effect of supply chain management on innovation and performance: A case study of holding firm

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A B S T R A C T

This paper presents a survey on relationship between supply chain management and innovation in an Iranian holding firm in auto industry named Iran Khodro. The study designs a questionnaire in Likert scale and using random sampling technique, distributes 250 questionnaires among some managers of this holding firm. The study consists of three parts including supply chain management, innovation and organizational performance. The study uses regression technique as well as structural equation modeling and it has detected that there were some strong and positive relationship between supply chain management and innovation. In addition, the result of the survey indicates that there was some positive and meaningful relationship between supply chain management and organizational performance.

1. Introduction

During the past few years, there have been tremendous changes on business models around the world. We see many firms with small capital and labor to create substantial value added (Bayraktar et al., 2007). These days, many high tech firms as well as knowledge-based firms have changed traditional economic definitions (Chen & Tsou, 2006; Hervani et al., 2005). Chong et al. (2011) examined a framework, which determines the relationships between supply chain management (SCM) practices, operational performance and innovation performance of Malaysian manufacturing and service firms. The results indicated that SCM practices in both the upstream and downstream supply chain maintained a direct and significant effect on organizational and innovation performance of Malaysian firms. Innovation improvement caused by SCM also yields in better organizational performance. Their findings also disclosed that manufacturing and service firms in Malaysia did not have a substantial difference in their SCM practices.

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Koh et al. (2007) determined the underlying dimensions of SCM practices and empirically examined a framework detecting the relationships among SCM practices, operational performance and SCM-related organizational performance with special emphasis on small and medium size enterprises (SMEs) in Turkey. Based on exploratory factor analysis (EFA), SCM practices were grouped in two factors including outsourcing and multi-suppliers (OMS), and strategic collaboration and lean practices (SCLP). Quayle (2003) performed similar investigation of SCM practice in UK industrial SMEs.

2. The proposed study

This paper presents a survey on relationship between supply chain management and innovation in some Iranian holding firm in auto industry named Iran Khodro. The study designs a questionnaire in Likert scale and Table demonstrates details of the survey.

Table 1
The summary of different components of the survey

Concept	Dimension	Component	Questions
SCM	Strategic	Strategic partnership of suppliers	1-4
		Customer relationship management	5-6
	Operative	Information Technology	7
		Information communication	8
		Internal operations	9-10
		Education and learning	11-12
Innovation	Innovation in processes	Main process such as supplement, distribution, etc.	13-15
		Administration	16-19
	Innovation in services & products	Basic changes	20
		Development changes	21
Organizational performance	Financial	Profit	22-25
		Sales	26
	Non-financial	Employee performance	27-30
		Customers performance	31-32

As we can observe from the results of Table 1, there are 32 questions, where 12 questions are associated with supply chain management, 9 questions are related to innovation issues and 11 questions are associated with organizational performance. After performing some preliminary survey, we have decided to remove question 26 from the survey leaving us to have 31 questions. In addition, Cronbach alpha for three components of the survey; namely, SCM, innovation and organizational performance were 0.841, 0.838 and 0.715, respectively. These results confirm the overall questionnaire. There are three hypotheses associated with the proposed study of this paper as follows,

1. Supply chain management influences positively on organizational performance.
2. Supply chain management influences positively on innovation in holding company.
3. Innovation influences positively on organizational performance.

The proposed study has applied Kolmogorov-Smirnov in order to understand whether the data are normally distributed or not and the results have confirmed that all data were normally distributed. Table 2 demonstrates the results of our investigation.

Table 2
The summary of Kolmogorov-Simirnov

		Organizational performance	Innovation	SCM
N		197	197	197
Normal Parameters[a,b]	Mean	2.3898	2.2598	2.9284
	Std. Deviation	.53117	.51606	.44424
Most Extreme Differences	Absolute	.058	.078	.096
	Positive	.058	.078	.096
	Negative	-.039	-.062	-.066
Kolmogorov-Smirnov Z		1.346	.812	1.101
Asymp. Sig. (2-tailed)		.053	.525	.177

3. The results

In this section, we present details of our findings on testing the three hypothesis of the survey. Fig. 1 demonstrates the summary of our findings.

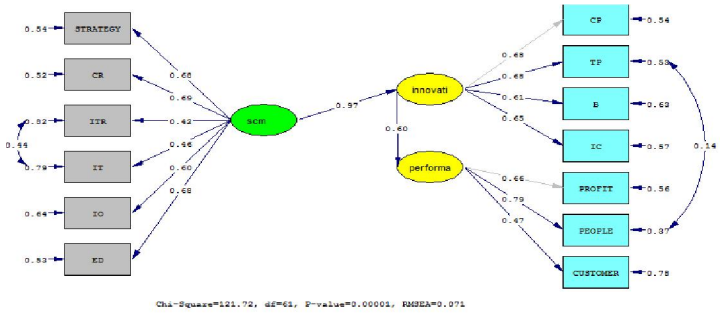

Fig. 1. The results of standard coefficients for the implementation of structural equation modeling

In addition, Table 3 demonstrates the results of statistical observations associated with the implementation of structural equation modeling.

Table 3
The summary of statistical observations associated with SEM implementation

Attributes	Value	Desirable value	Results
NFI	0.93	> 0.90	Desirable
NNFI	0.95	> 0.90	Desirable
CFI	0.96	< 0.90	Desirable
RMSEA	0.071	< 0.08	Relatively desirable
GFI	0.91	> 0.90	Desirable
AGFI	0.87	> 0.90	Relatively desirable
RMR	0.029	Close to zero	Desirable
IFI	0.96	> 0.90	Desirable

The results of Table 3 confirm the overall model and allow us examine the hypotheses of this survey. Based on the results of Fig. 1, there is a positive and meaningful relationship from SCM toward innovation (β = 0.97). In addition, there is a positive and meaningful relationship from innovation toward organizational performance (β = 0.6). Finally, SCM influences organizational performance through innovation. These results confirm three hypotheses of the survey.

We have also performed three regression techniques to examine three hypotheses of the survey. The first regression analysis investigates the relationship between organization performance and innovation and Table 4 shows details of the results.

Table 4
The summary of regression analysis between organization performance and Organizational performance

Hypothesis	Independent variable	Dependent variable	Correlation ratio	R^2	t-student	Sig.	Result
First	CRM	Organizational performance	0.32	0.134	5.597	0.000	Confirmed

As we can observe from the results of Table 4, there is a meaningful relationship between CRM and organizational performance. Similarly, Table 5 demonstrates the summary of our findings on testing the relationship between CRM and Innovation and Table 5 shows details of our findings.

Table 5
The summary of regression analysis between organization performance and innovation

Hypothesis	Independent variable	Dependent variable	Correlation ratio	R^2	t-student	Sig.	Result
Second	CRM	Innovation	0.778	0.605	17.266	0.000	Confirmed

As we can observe from the results of Table 5, there is a meaningful relationship between CRM and Innovation. Finally, Table 6 summarizes the results of our findings on testing the third hypothesis of the survey on relationship between Innovation and organizational performance.

Table 6
The summary of regression analysis between organizational performance and innovation

Hypothesis	Independent variable	Dependent variable	Correlation ratio	R^2	t-student	Sig.	Result
Third	Organizational performance	Innovation	0.435	0.189	6.745	0.000	Confirmed

As we can observe from the results of Table 6, there is a meaningful relationship between organizational performance and Innovation. Finally, Table 7 demonstrates the results of relationship between various components in terms of their effects and ranking.

Table 7
The summary of ranking various factors

Rank	Independent variable	Dependent variable	Correlation	Coefficient of determination
1	CRM	Innovation	0.778	5.6
2	Innovation	Organizational performance	0.435	9.18
3	CRM	Organizational performance	0.32	4.13

Based on the results of Table 7, there is a strong relationship between CRM and Innovation, a moderate and positive relationship between Innovation and organizational performance and fair relationship between CRM and organizational performance.

4. Conclusion

In this paper, we have presented an empirical investigation to study the relationship between customer relationship management and having innovative ideas in one of Iranian automakers. The study has accomplished structural equation modeling as well as regression analysis to examine the hypotheses of the survey. Based on the results of this survey, we have concluded that there was a strong relationship between CRM and Innovation, a moderate and positive relationship between Innovation and organizational performance and fair relationship between CRM and organizational performance.

References

Bayraktar, E., Demirbag, M., Koh, S. C., Tatoglu, E., & Zaim, H. (2009). A causal analysis of the impact of information systems and supply chain management practices on operational performance: evidence from manufacturing SMEs in Turkey. *International Journal of Production Economics*,*122*(1), 133-149.

Chen, J. S. J., & Tsou, H. T. (2006). Information technology adoption for service innovation practices and competitive advantage: the case of financial firms. *Information Research*, *12*(3), 7.

Chong, A. Y., Chan, F. T., Ooi, K. B., & Sim, J. J. (2011). Can Malaysian firms improve organizational/innovation performance via SCM?. *Industrial Management & Data Systems*, *111*(3), 410-431.

Hervani, A. A., Helms, M. M., & Sarkis, J. (2005). Performance measurement for green supply chain management. *Benchmarking: An International Journal*,*12*(4), 330-353.

Koh, S. L., Demirbag, M., Bayraktar, E., Tatoglu, E., & Zaim, S. (2007). The impact of supply chain management practices on performance of SMEs. *Industrial Management & Data Systems*, *107*(1), 103-124.

Quayle, M. (2003). A study of supply chain management practice in UK industrial SMEs. *Supply Chain Management: An International Journal*, *8*(1), 79-86.