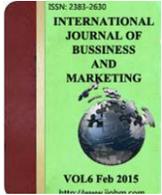


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The Impact of Supply Chain Integration on Competitive Capabilities in Automobile Parts Manufacturing Industry in Qazvin Province

Arash Bahrami ^{1*}, Pooya Sabetfar ^{2*}

¹ MA in Executive Management, Islamic Azad University of Qazvin, Iran

² Assistant professor in the Faculty of Management, Islamic Azad University of Qazvin, Iran

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ABSTRACT

Based on a plan proposed by Iranian Automobile Parts Manufacturing Association, by 2025, the value of automobile parts manufactured in the country should be around 31 billion dollars, part of which will be exported to other countries. Based on the this point, in this competitive market with huge amounts of investment and profitability, achieving success involves a meticulous strategic plan for the production of basic materials, distribution, marketing, and other related activities. In this study, the impact of supply chain integration on competitive capabilities in automobile parts manufacturing industry in Qazvin province was investigated. In order to achieve this objective, a conceptual model was used to examine the relation between integrated supply chain (internal and external integrations) and parameters of competitive capabilities such as expenses, quality, delivery, and innovation. The conformability of five hypotheses was also examined in this study. The majority of studies conducted on integrated supply chain have focused on its impact on various types of performance. Therefore, more studies need to be conducted in this area of research, this study intended to find whether more integration led to the creation of more competitive capabilities. Also, measuring the performance of internal integration and external integration in the auto parts industry and ranking dynamic integrated supply parameters based on severity of the impact of the acquisition of competitive capabilities. The obtained results indicated that the internal integration was a pre-requisite for external integration. Moreover, the results showed that internal integration and external integration had a positive impact on competitive capabilities of the company. Finally, it must be added that internal integration improves competitive capabilities through external integration. Using Cochran's test, the researchers selected a sample consisting of 57 people. In order to answer the research questions, SPSS 22 and PLS software's were used to analyze the data and to obtain the inferential results.

Introduction: Today, cooperation among various companies is a vital condition for the success of supply chain¹ (Tonn & Cannon, 1999). Since new products are continuously introduced into the market, it is very difficult to predict the conditions of the market. In order to respond to these rapid changes and to maintain their competitive positions, the companies have to pay a lot of attention to their positions in the market. Because global competitions among companies have been growing in recent decades, the need for the creation of integrated supply chain and cooperation strategies has become more urgent (Jafarnejad, 2006). A close relationship between customer and manufacturer gives the companies the opportunity to gather precise information about the demands in the market. In this way, the time duration for planning and manufacturing is reduced and the company can respond to the demands of customers (Flynn, 2004). Global competitions and the growth of customers' expectations have led to a situation in which the manufacturers focus on the speed of production, trust, and flexibility. In order to improve such capabilities, a large number of companies are employing integrated supply chain strategy (Calantone & Zhao, 2002). In an integrated supply chain, the manufacturers cooperate with each other and manage their internal and external organizational processes. The aim of an integrated supply chain is to facilitate the flow of products, services, and money in the market and to respond to the demands of customers with the least amount of expenses and at a high speed (Flynn, 2004). In this study, internal integration and external integration, which includes supplier integration and customer integration, are taken as an integrated supply chain. Internal integration is dependent on logistical integration, coordination, and cooperation with other parties. The external integration is dependent on the integration of logistical activities of the company and activities of customers and suppliers. One of the main concerns of all manufacturing companies is to capture a big share in the market. This can be achieved by cooperation and coordination within the supply chain. Innovation, on-time delivery, high-quality products, and lower expenses are a number of competitive capabilities which can be achieved by an efficient supply chain. Competitive capabilities enable a given company to conduct its activities in a better way compared to other companies. This places the company in a stronger position to conduct its marketing plans. In the literature, six competitive capabilities have been introduced: product innovation, low costs, quality of product, delivery, flexibility, and offering services to the customers. Traditionally, the first four priorities are the focus of attention.

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The majority of studies conducted on integrated supply chain have focused on its impact on various types of performance (Jafar nezhad,2007,Flynn,2004,Morash,1998). However, despite the important parameters of competition in the industry of auto parts, including product innovation and delivery (Rodrigues, 2004), quality and cost had previously been considered as competitive factors (Noble, 2010). Therefore, more studies need to be conducted in this area of research. The aim of this study was to examine the impact of various aspects of supply chain integration (including internal integration and external integration) (Flynn,2004) on competitive capabilities (product quality, delivery, costs, and product innovation) (Koufteros,2002) in automobile parts manufacturing industry in Qazvin province. Furthermore, this study intended to find whether more integration would lead to the creation of more competitive capabilities. It also purported to measure the performance of internal integration and external integration in the auto parts industry and rank dynamic integrated supply parameters based on severity of the impact of the acquisition of competitive capabilities

Literature review and hypotheses development

Supply chain integration & Competitive capabilities

In today's world, integrated supply chain is recognized as a competitive advantage in global markets. Therefore, it is necessary to examine those factors which have a role in an integrated supply chain. An effective management of supply chain involves the integration of internal processes in the organization, all suppliers, and external customers. An integrated supply chain can be defined as an interactive and cooperative process among companies in the supply chain. The aim of an integrated supply chain is to achieve results which are acceptable for all involved organizations in the chain. In an integrated supply chain, a strong strategic partnership gives the suppliers a better understanding of various needs of manufacturers. Therefore, predicting the needs of manufacturers is facilitated. The sharing of information about products, processes, timing, and capabilities enables manufacturers to develop their plans and to deliver their products on the predicted time. In this article, integrated supply chain is a chain in which the manufacturer cooperates with the partners in a strategic way. In such a chain, all involved partners collectively

manage internal and external processes of the organization. The aim of an integrated supply chain is to facilitate the flow of products, services, and money in the market and to respond to the demands of customers by the least amount of expenses and a high speed (Flynn, 2004). Lee (2000) stated that a properly integrated supply chain can reduce the expenses (Larson, 1994). Also, the integration of supply chain creates value for the companies, partners in the supply chain, and the other beneficiaries. Conducting a case study, Du (2007) sought to find how competitive advantage can be achieved by an integrated supply chain. He found that the success of companies is dependent on high investment in information technology. He reported that a general strategy in the supply chain can improve the quality of products and reduce costs. In another research, Wong and Bon (2013) studied the impact of internal and external integration on product innovation. In their study, the single and combinatory impacts of internal and external integration of supply chain on product innovation were examined. They explored two combinatory impacts: balanced integration and complementary integration. The results of this study showed that in Thailand's automobile manufacturing industry, external integration and complementary integration are positively correlated with product innovation. However, internal and balanced integrations had no relation with product innovation.

Competitive capabilities

In operation management studies, the expressions competitive capabilities (Fornel, 2008), competitive superiorities (Antonio, 2009), condensed capabilities and worthiness (Fawcett, 2002) are used instead of each other. In the existing literature, it six competitive capabilities have been considered: product innovations, company ability evaluation representative for innovation (Rodriguse, 2004), low price, quality of product, delivery, flexibility, and customer service (Vander Vaart, 2008). Of course, traditionally, there are 5 acceptable superiorities: cost (price), time (delivery), innovation, quality, and flexibility. Determining the competitive superiorities in a company can be related to the overall worthiness of the company (Koufterus, 2006). Capabilities are the activities that a company can do better than its competitors. Additionally, ability is not the power of buying something. Capabilities are special only for every organization and should be developed internally. The fact that they can't be copied or transferred makes them valuable. Therefore, capabilities arise less from especial technologies or production facilities and more from production frame-work such as staff, information and management system, organizational learning and concentration (Stone Barker, 2002). In this study, quality of product, delivery, price and product innovation are considered as competitive capabilities.

Considering the points mentioned so far the first theory can be stipulated as follows:

H1: The integration of supply chain has an impact on competitive capabilities in automobile parts manufacturing industry in Qazvin province.

Internal integration

Internal integration refers to the series of adaptable generating activities which mutually support generating objectives (Hammond, 2002). Internal integration has been defined as a process of collaboration and cooperation interaction which makes segments work together coherently (Hulland, 1999). In this study internal integration is a position in which a producer structuralizes the organizational strategies, co-operational activities and processes and synchronous processes in order to resolve customers demand. In an organization (Flynn, 2004), the information system links all the segments, therefore all the parts can get well-timed and exact information from other parts and then they will gain a high level of integrity. In addition, there should be integral communications between parts according to business processes and also there should be strong relations which support collaboration and cooperation in all of the parts (Vickery, 2003). Thus considering the points mentioned so far the first theory can be stipulated as follows:

H2: Internal integration of supply chain has an impact on competitive capabilities in automobile parts manufacturing industry in Qazvin province.

H4: Internal integration has an impact on external integration in the supply chain in automobile parts manufacturing industry in Qazvin province.

External Integration

External integration is to orientate the producing objectives and strategies with market demands and company's competitive necessities considering environmental limitations (Hammond, 2002). External integration happens between the company and its external partners (Kristal, 2010). It indicates the importance of purchaser/seller coordination in order to create utility (Baldwin, 2003). Barat and Olivira (2001) recommended that integration takes place when two or more than two companies share common trade planning, management, executing and information of function evaluation responsibilities.

Forward and Backward integration (Du, 2007), as well as, customer supplier integration (Smith, 1998), are entirely in this category. In this study, external integration (customer and supplier integration), is a position in which the producer accompanied with its partners participate in team-work and concordant processes in order to structuralize outside company strategies, processes and operations. (Flynn, 2004)

H3: External integration of supply chain has an impact on competitive capabilities in automobile parts manufacturing industry in Qazvin province.

H5: Internal integration, through external integration, has an impact on competitive capabilities in automobile parts manufacturing industry in Qazvin province.

Conceptual model

The Research conceptual model is a conceptual model based on theoretical relationships among a number of factors that have been identified as important Research issues. The theoretical framework underpins the whole Research. This is a logical network, and the process contains a description of relations between variables that seek to implement processes such as interviews, observations and background check are identified (Skaran, 1390).

Research model is shown in the figure below:

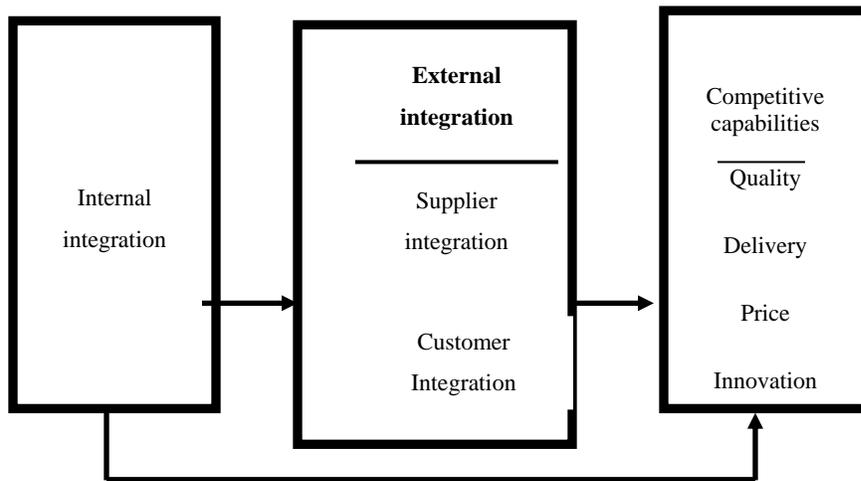


Figure 1. Model of the research

Research Methodology:

This study is a descriptive-survey research. In terms of objective, it is an applied research. According to the statistics presented by the Organization of Qazvin's Mines and Industry, 50 companies are active in this industry in the central part of Qazvin (the metropolitan part).

Statistical population consisted of managers of these plants. Using Cochran's test, the researchers selected a sample consisting of 57 people. To assess the reliability of the questionnaire, it was distributed among some 30 people. Validity of the study was assessed by means of analyzing content and construct validity. As to content validity, questionnaires were distributed among some professors and experts of the field. For content validity, both convergent and discrimination validity were used.

In order to determine the reliability, the internal consistency method (Cronbach alpha) was used. The obtained coefficient of Cronbach alpha was 0.818, which is above 0.7. Therefore, it is considered as an acceptable value. Moreover, Cronbach alpha coefficient was calculated for all variables of the research. The obtained results indicated a high degree of reliability. In the first stage of data analysis, the descriptive data of participants and variables were arranged in a number of tables and diagrams. In the next stage, in order to answer research questions, SPSS 22 and PLS softwares were used to analyze the data and to obtain the inferential results. To examine the reliability of the questionnaire and the normality of the data, Cronbach alpha and Kolomogrov-Smirnov tests were used respectively. Also, to test the validity and the goodness of the model, modeling test and structural equation modeling were used.

Result:

There were a number of methods for testing the validity. Because each one of the variables consisted of several factors, exploratory factor analysis was used to examine the validity. In factor analysis, we should be confident that the data can be used for analysis. In other words, we should be confident that data can be used for factor analysis. To achieve this goal, KMO index and Bartlett's test were used. If KMO index is higher than 0.6 (and close to 1) and the Sig of Bartlett's test is lower than 0.05, the data can be used for factor analysis. The outputs of these tests have been presented in table 1. The value of KMO index is 0.82 (higher than 0.6); therefore, the sample (number of respondents) is large enough for factor analysis. Also, the Sig of Bartlett's test is smaller than 0.05; therefore, factor analysis is suitable for identifying the factorial structure.

KMO test		0.82
χ^2	5925.263	Bartlett's Test
Degrees of freedom	298	
Sig	0.000	

Table 1. KMO and Bartlett's test for the items of the questionnaire

If average variance extracted (AVE) of a variable is larger than the square of correlation coefficient between that variable and other variable, that variable has discriminant validity. In table 2, the values on the main diagonal are average variance extracted.

QUA	INN	INI	EXI	DEL	COS	
					0.616	COS
				0.762	0.230	DEL
			0.565	0.506	0.229	EXI
		0.671	0.543	0.471	0.183	INI
	0.689	0.190	0.256	0.096	0.178	INN
0.631	0.099	0.407	0.470	0.528	0.205	QUA

Table 1. AVE and correlation among research variables

Test of fitness of the conceptual model:

The purpose of fitness evaluation of the model is to find to what extent the entire model is consistent with the gathered experimental data. There is a wide variety of measures and indices for the fitness of a model. Unfortunately, none of them is superior to others in all respects. Depending on the sample size, estimation methods, the complexity of the model, the assumption related to the normality, or a combination of these cases, different methods can be used to examine goodness of fit (Kalantari, 2009). In this section, a conceptual model in the form of a path diagram is presented and its fitness is measured by different methods. Structural equation modeling includes a path diagram and confirmatory factor analysis. In figures 2 and 3, the coefficients of standard estimation and significant values of structural modeling have been presented. A number of fitness indices can be seen at the bottom. In the following table, variables along with their abbreviations have been presented.

Variables	Abbreviations
<i>Internal integration</i>	<i>INI</i>
<i>External integration</i>	<i>EXI</i>
<i>Quality</i>	<i>QUA</i>
<i>Delivery</i>	<i>DEL</i>
<i>Cost</i>	<i>COS</i>
<i>Inovation</i>	<i>INN</i>
<i>Competitive capabilities</i>	<i>COA</i>

Table 2. Variables of the study and their abbreviations

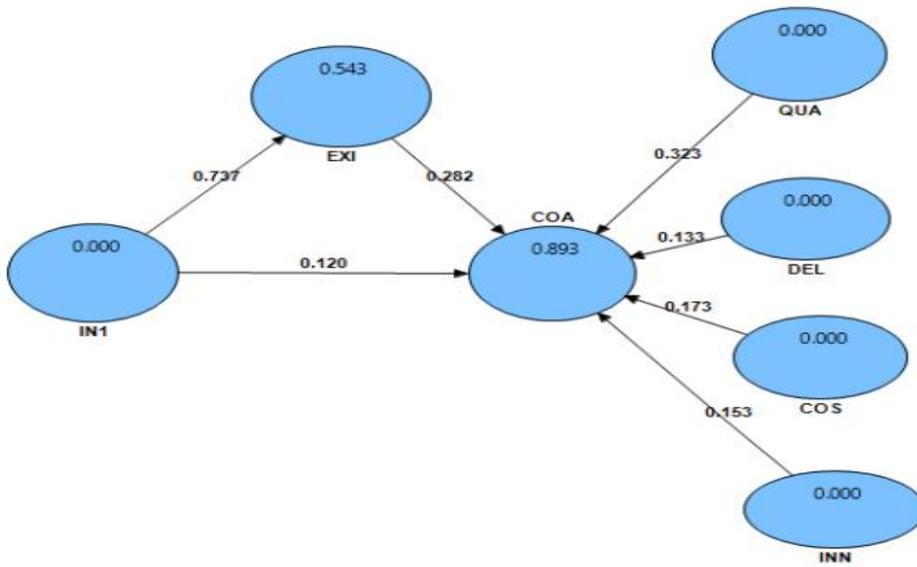


Figure 2. Significance (meaningfulness) values in structural model

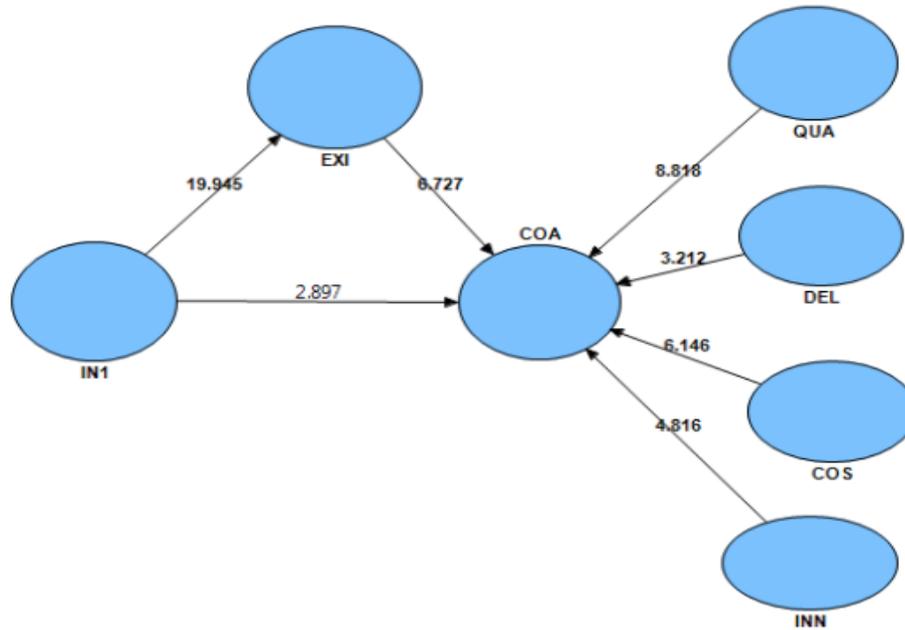


Figure 3. Significance (meaningfulness) values in structural model

According to these models, it can clearly be seen that the correlations among all mentioned variables are positive and significant (meaningful). Therefore, the model is confirmed. The values written on the paths show the coefficients of the paths. For testing the significance of path coefficients by bootstrapping, the values of Student's t-test were calculated. If the value of Student's t-test were higher than 1.96, the path coefficient would have been significant (meaningful) at the level of 0.05. If the value of Student's t-test were higher than 2.66, the path coefficient would have been significant (meaningful) at the level of 0.01.

Testing the research hypotheses

Hypothesis one: Internal integration of supply chain has an impact on competitive capabilities in automobile parts manufacturing industry in Qazvin province.

The hypotheses significance level between supply chain internal integration variable and competitive capabilities in automobile parts manufacturing industry is 2.897, which is larger than 1.96. It shows that at the probability level of %95, the correlation between supply chain internal

integration and competitive capabilities in automobile parts manufacturing industry is significant. Also, the path coefficient between these two variables is 0.120. It shows that supply chain internal integration has an impact on competitive capabilities in automobile parts manufacturing industry. Therefore, the first hypothesis is confirmed.

Hypothesis two: External integration of supply chain has an impact on competitive capabilities in automobile parts manufacturing industry in Qazvin province.

The hypotheses significance level between supply chain external integration variable and competitive capabilities in automobile parts manufacturing industry is 6.727, which is larger than 1.96. It shows that at the probability level of %95, the correlation between supply chain external integration and competitive capabilities in automobile parts manufacturing industry is significant. Also, the path coefficient between these two variables is 0.282. It shows that supply chain external integration has an impact on competitive capabilities in automobile parts manufacturing industry. Therefore, the second hypothesis is confirmed.

Hypothesis three: Internal integration has an impact on external integration in the supply chain in automobile parts manufacturing industry in Qazvin province.

The hypotheses significance level between supply chain internal integration variable and supply chain external integration in automobile parts manufacturing industry is 19.954, which is larger than 1.96. It shows that at the probability level of %95, the correlation between supply chain internal integration and supply chain external integration in automobile parts manufacturing industry is significant. Also, the path coefficient between these two variables is 0.737. It shows that supply chain internal integration has an impact on supply chain external integration in automobile parts manufacturing industry. Therefore, the third hypothesis is confirmed.

Hypothesis four: Internal integration, through external integration, has an impact on competitive capabilities in automobile parts manufacturing industry in Qazvin province.

In order to investigate the mediating role of supply chain external integration variable, the outputs of structural equations were used. The direct impact supply chain internal integration variable on competitive capabilities is 0.120 (t-value=3.076). Also, the indirect impact of supply chain internal integration variable on competitive capabilities (with the impact of mediating

variable supply chain external integration) is 0.207. It must be noted that the indirect impact of supply chain internal integration variable on competitive capabilities is equal to path coefficient (direct impact) of supply chain internal integration variable on supply chain external integration (0.737) multiplied by path coefficient of supply chain external integration on competitive capabilities (0.282). Since the indirect impact of supply chain external integration on competitive capabilities (0.207) is higher than its direct impact (0.120), the mediating role of supply chain external integration variable is accepted. Therefore, the fourth hypothesis is confirmed.

Main hypothesis: The integration of supply chain has an impact on competitive capabilities in automobile parts manufacturing industry in Qazvin province.

The integration was measured by two variables (internal and external integration). In order to investigate the relationship between integration variables (independent variables) and competitive capability (dependent variable), multiple regression was used. The results are given in the following tables.

Coefficient of correlation	Value of coefficient of determination (R_2)	Adj R^2	Standard fault of estimate
0.936	0.876	0.871	0.139

Table 7. Multi regression model for integration and competitive capability variables

The results presented in the above table show that the coefficient of correlation between integration variables and competitive capability is 0.936. Considering the value of coefficient of determination (R_2), we can say that integration variables can predict competitive capabilities variance up to 0.876.

Source of changes	The sum of squares	Degrees of freedom	Mean square	F	Sig.	Watson
Regression model	7.403	2	3.702			
Remaining	1.052	54	0.019	190.062	<0.001	1.554
Total	8.455	56				

Table 8. Analysis of variance for investigating the efficiency of regression model

Based on the data presented in table 8, the level of significance (meaningfulness) of test is lower than 0.05. Therefore, goodness of fit of regression model is acceptable. Also, since the value obtained by Durbin-Watson test is 1.554 (which is between 1.5 and 2.5), we can conclude that the remainders are independent.

Variables	t	B Standard coefficient	Non-standard coefficient		Sig.
			Regression	B	
Constant value	1.828		0.198	0.362	0.073
Internal integration	8.232	0.618	0.186	0.748	0.000
External integration	2.446	0.447	0.296	0.595	0.023

Table 9. The coefficients of regression paths and coefficient significance test

As can be seen in table 9, the level of significance (meaningfulness) of factors (indices) is 0.05. Therefore, they have an impact on competitive capabilities. According to coefficient column (B), internal integration variable (with a coefficient of $\beta=0.618$) has the highest level of impact. Moreover, external integration variable (with a coefficient of $\beta=0.447$) is in the second position in terms of the degree of impact. Based on the coefficient values, the impacts of internal and external integration on competitive capabilities are direct

The relationship between variables can be formulated in the following way:

$$\text{Competitive capabilities} = 0.362 + (0.748) \times (\text{internal integration}) + (0.595) \times (\text{external integration})$$

Conclusion

Based on the results obtained in this study, the aspects of integrated supply chain (internal and external integrations) have a great impact on competitive capabilities. Therefore, it can be said that a higher integration in the supply chain improves competitive capabilities. These results are consistent with the findings of Lee (2000) and Rosenzweig et al (2003). In this study, it was found that internal integration directly (without any mediation) improves competitive

capabilities. This is consistent with the findings of Griffin (1997), Smith and Rosenzweig (1998), Barglman et al (2001), Tid et al (2001), Partasari and Hammond (2002), Cofros and Marcolid (2006), Asonik et al (2007), and Anthony et al (2009).

The results of this research confirm the impact of external integration on competitive capabilities. In this research, external integration includes supplier integration and customer integration. In previous studies (for example, Kristal, 2010; Rodriguez, 2004), the impact of these integration aspects on competitive capabilities had separately been investigated. However, for the first time, this research examined the simultaneous impacts of supplier integration and customer integration (as an external integration) on competitive capabilities. Moreover, in this study, the impact of internal integration on external integration was confirmed. This hypothesis was tested on the basis of suggestions made by Morash and Clinton (1998), Stones (1989), and Flynn et al (2010). In this research, the mediating role of external integration was tested. It was confirmed that internal integration impacts on competitive capabilities through external integration. In addition, degree of indirect impact of internal integration on competitive capabilities through external integration is higher than its direct impact on competitive capabilities. In previous studies, the impact of internal integration on external integration had been discussed only as a suggestion, and the mediating role of external integration had not been evaluated. In this study, for the first time, such an impact was tested.

Managerial Implication

Cooperating in the process, product improvement, making products available to customers expediently and safely by the producer. Coordinating or using multi-functional team-works and participatory decision makings, helps product innovation as well.

Supplier and customer integrity should be conjointly since cooperating with supplier and also having effective communications with customers helps producer benefit from cooperating with his supplier, having his own especial customers and demands at the same time, thus its competitive capability will increase and it will have a better chance of success in competitive market.

Likewise, one of the most important outcomes of this study is to approve the function of inside integrity as a prerequisite for outside integrity .Notwithstanding, any company at first should

improve its inside position and use its existing potential and capacities and set the coordination and cooperation entirely in the company in order to be able to establish a coordination with its suppliers and customers and have long-term communications with them. Having appropriate and effective relations, using inside-organization information systems, using multi-functional teams, make the organization more inside-integral and encourage the organization to have integration and cooperation with its suppliers and customers. Development in information technology for suppliers, customers and distributors makes quick communications possible. In fact, computer increases the ability of coordinating the different processes of supply chain. Computerized sale information can transfer the information immediately to suppliers and distributors through network connections and empowers the organizations to deliver the products to customers very fast and the storages will be reloaded by suppliers as fast as possible. If each person and unit during supply chain had an access to similar information at the same time, the coordination between the units would increase, uncertainty would decrease. Then the stocks (in the storage) would decrease, and finally, cost advantage would happen.

In order to make an integration with supplier and customer conjointly, inter-company teams, which coordinate the processes between different companies in supply chain, can be used. Clear flow of information and communications, is highly related to integral supply chain and, thereby, competitive capabilities.

Nowadays, using the internet, companies can decrease or delete time-consuming commercial activities through linking purchasing and ordering transactions and direct connections to suppliers, factories, distributors, and customers.

Changing the organizational structure of the companies which are traditionally structured, identifying main processes in the company, and using multi-functional teams in these kind of processes and, finally, information apportion and communal planning, help companies to get integrated. In addition, it is needed to explain the integration advantages to the personnel.

Limitations and Future research

Survey limitations

This survey, like the other surveys, has got limitations which may destroy the survey results including items below:

- Mistrust of managers toward previous surveys and lack of a proper cooperation with the surveyor.
- Non-existence of the same condition for all respondents the questionnaire and not being able to control inadvertent factors which exist in surveys circumstances for instance: exhaustion, tiredness...
- This survey's results are useful only for automobile segments manufacturing industry and for other industries similar survey should be done.
- Collecting data which is related to a part of time. This may have no suitability with future survey findings in the same community. As data is collected in a especial time duration, it may happen if this data were collected at another time duration, results would be different from these results.
-

Suggestion for future research

Concerning the study was accomplished about integral supply chain and competitive capabilities and get to a rather clear view of I, thus it is needed to study the effect of integral supply chain on competitive capability from different points of view. At first we want the researchers (in the future performing a comprehensive study on this case), follow this subject with other variables seriously. Also this subject should be accomplished in the other industries in order to investigate the effect of integral supply chain dimensions on competitive capability elements and to measure the risks effects of not using supply chain integration on competitive capabilities.

In this field points below are recommended:

- Studying the effect of Marketing parameters (product quality, delivery, cost and product innovation, on gaining the competitive capability.
- Studying the relation between supply chain integration and gaining competitive capabilities in other industries.
- Studying this survey's subject using other supply chain models.

References:

- Ton & Cannon TO integrate or not to integrate: factors affecting the adoption of virtual integration strategy in organizations, Business strategy series, vol 8, 1998.
- Antonio, K.W 1., Richard, C. M. Y. , Tange. E . The complementarities of internal integration and product modularity: An empirical study of their interaction effect on competitive capabilities, *Engineering and technology management*, vol. 26, 2009.
- Morash & Smith. Analysis of manufacturing strategy as an explanatory factor of competitiveness in the large Spanish industrial firm, *International journal of production economics*, vol. 72, 1998.
- Baldwin, J.R., Hanel, P. Innovation and Knowledge creation in an open economy, Cambridge university press, UK, 2003
- Jafarnejad.a, A. Exploring the experiences of collaborative planning initiatives, *International journal of physical Distribution & logistic management*, Vol. 31, 2006.
- Rodrigues. , Fawcett, S. E., Mangan, G. M. The product life cycle: A tool for functional strategic alignment, *International journal of purchasing and materials management*, Vol.34, 2004.
- Burgelman, R. A., Maidque, M. A., Wheelwright, S. C. "Strategic management of technology and innovation" , 3rd ed. McGraw-Hill, NY, (2001).
- Calantone, R. J. , Cavusgil, S. T., Zhao, Y. "learning orientation, firm innovation capability, and firm performance". *Industrial marketing management*, Vol. 31, (2002).
- Noble, W. W.(2010). *PLS-Graph user's guide' version 3.0*. Houston, TX:Soft Modelling.
- Kofteros, w.A., & Newsted, P. R. (2002). Structural equation modelling analysis with small samples using partial least squares. In R. H. Hoyle(Ed.), *Statistical strategies for small sample research* (pp.307-341). Thousand Oaks, CA:Sage.
- Flynn, B. B., Flynn, E. J. "An exploratory study of the nature of cumulative capabilities", *Operation Management*, Vol. 22, (2004).
- Flynn, B. B., Huo, B., Zhao, X. " The impact of supply chain integration on performance: a contingency and configuration approach", *Operations Management*, Vol. 28, (2010).
- Lee, C. " Supply chain management implementation in the Spanish grocery sector: an exploratory study", *international journal of integrated supply management*, VOL. 1, (2000).

- Hulland, J. "Use of partial least square (PLS)". in strategic management research: a review of four recent studies, Strategic manage, Vol. 20, (1999).
- Larson, K. B., mentzer, J.T. " Marketing's Integration with other departments", Business research, Vol. 42, (1994).
- Stank, T. P., Keller, S. B., Closs, D. J."Performance benefits of supply chain logistical integration", Transportation journal, Vol. 41, (2001).
- Vickery, G. C. "Integration the supply chain", International journal of physical distribution and materials management, Vol. 19, No. 8, (2003).
- Hammond .A.j& Stone barker, (2002), "Coordination of production and distribution planning", European Journal of operation research, Vol. 72. Pp 503-517.
- Fornel & Vander vaart(2008)" An integrated plant loading model with economice of scale and scope", European journal of operation research, No. 50, pp. 2666-276.
- Kristal.A.q, (2010), " Planning and coordination of production and distribution facilities for multiple commodities", European journal of operation research, Vol. 133, pp. 394-408.