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CORPORATE INTEGRATION AND COMPETITIVENESS: TURKISH SUPPLIERS' PERSPECTIVE

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ABSTRACT

This paper examines the nature and the consequences of the relationship between suppliers and their industrial buyers. Integrated and arms' length relationships are the two possible relationship structures that dominate industrial life. Integrated types of relationships have unique characteristics such as commitment, trust, cooperation, communication structures, and joint conflict resolution techniques of the related parties that discriminate them from traditional business relationships. Both univariate and multivariate analysis showed that firms having at least one integrated relationship performed better than those operating only in an arms' length manner for all relational outcome variables, which include product quality, delivery reliability, process flexibility and cost leadership. These firms were also more innovative but the differences were statistically significant only for innovativeness, process flexibility and cost leadership. The findings of hierarchical regression analysis supported a two-way relationship among the four integration intensity factors (cooperation, trust, communication, joint conflict resolution) and the three relational outcome variables (product quality, process flexibility and cost leadership). Innovativeness was found to be an important mediating variable between the two integration intensity factors communication and cooperation and the two relational outcome measures product quality and process flexibility.

Keywords: Integration, Relational Outcomes, Suppliers

Jel Code: L14

TÜRK YAN SANAYİ PERSPEKTİFİNDEN KURUMSAL ENTEGRASYON VE REKABET GÜCÜ

ÖZET

Bu çalışmanın amacı yan sanayi ile ana sanayi arasındaki ilişkinin niteliğini ve sonuçlarını incelemektir. Piyasa bazlı ilişkiler ile entegrasyona dayalı ilişkiler günümüz endüstriyel yaşamına hükmeden iki ayrı kutup olarak kabul edilmektedir. Ancak entegrasyona dayalı ilişkilerin geleneksel ilişki tarzına kıyasla ilişkiye bağlılık, karşılıklı güven, iletişim, işbirliği, birlikte problem çözme yeteneği gibi bazı özel nitelikleri bulunmaktadır. Yapılan analiz sonucunda en az bir müşteri ile entegrasyon ilişkisi içinde olan yan sanayi firmalarının yalnızca piyasa bazlı ilişkilere sahip yan sanayi firmalarına kıyasla ürün kalitesi, teslimat etkinliği, süreç esnekliği, maliyet liderliği olarak tanımlanan tüm ilişkisel sonuçlarda ve yaratıcılık yeteneğinde gerek tek değişkenli gerekse çok değişkenli düzeyde üstünlük sağladığını ortaya koymaktadır; ancak bu üstünlük yalnızca yaratıcılık, süreç esnekliği ve maliyet liderliği faktörleri için istatistiki açıdan anlamlıdır. Hiyerarşik regresyon analizi ise, entegrasyon ilişkisini ölçen değişkenlerden işbirliği, karşılıklı güven, iletişim ve birlikte problem çözme yeteneği faktörleri ile, ilişkisel sonuçları ölçen ürün kalitesi, süreç esnekliği ve maliyet liderliği faktörleri arasında iki yönlü bir ilişki olduğunu ortaya koymaktadır. Yaratıcılık faktörü ise entegrasyon ilişkisini ölçen faktörlerden iletişim ve işbirliği ile ilişkisel sonuçları ölçen değişkenlerden ürün kalitesi ve süreç esnekliği arasındaki iki yönlü ilişkiyi belirleyen önemli bir aracı değişken olarak ortaya çıkmıştır.

Anahtar kelimeler: Entegrasyon, İlişkisel sonuçlar, Yan sanayi.

Jel Kodu: L14

1. INTRODUCTION

The relationships between suppliers and their industrial buyers have been an important concern for researchers for the past 150 years. In the 19th century and in the first half of the 20th century, the stream of thought that dominated industrial life was the neoclassical theory based on the price mechanism. Neoclassical economic theory maintains that the economic system works itself and needs no central control or survey. All relations are impersonal; consequently the business relationships are of pure arm's length type and firms are islands of planned coordination in a sea of market relations (Plant 1932).

In the middle of the 20th century business conditions started to change. When the management of information became the main concern of managers, internalization of activities seemed to be more beneficial. It was the era of vertical integration that became prevalent in industries with deep and specialized industrial know-how. Hierarchies appeared as a new mode of governance where the main concern was the extent of firm expansion (Williamson 1975, Williamson 1981, Williamson 1998).

The last quarter of the 20th century marked a new turning point in industrial organization. The development of information technologies led to the fast accumulation and transfer of tacit knowledge which eroded the information advantage of integrated structures. As a result, industrial structure moved from a transactional way of operating to relational exchanges. Instead of integrating vertically, firms started to focus on their main activities and strengthened their associations with suppliers. The new industrial structure, which was based on relationships rather than on transactions or contracts, was accepted as a new way of coordinating economic activity. (Powell 1990)

This new industrial structure gave rise to networks composed of integrated relationships, which were found to be economically more efficient and more effective than other forms of governance in coping with environments requiring fast access to information, flexibility and responsiveness to changes when the involving parties were dependent on the resources of each other, shared risks and gains fairly and solved problems jointly. Strategic considerations like accessing critical resources or obtaining the crucial skills outweighed the simple concern for cost minimization (Thorelli 1986, Jarillo 1988, Powell 1990).

The purpose of this study is to examine the nature and the consequences of the relationship between suppliers and their industrial buyers from the suppliers' perspective. It is hypothesized that compared to traditional business relationships, integrated relationships have unique characteristics such as commitment, trust, cooperation, communication and joint conflict resolution between the involving parties. The strength of these unique features determines the intensity of the relationship and creates some competitive capabilities, called relational outcomes which are measured through improved quality, delivery reliability, increased flexibility and cost leadership. Innovativeness is an important attribute for the firms, as it affects both the intensity of the relationship and the magnitude of the competitive outcomes achieved. Furthermore, innovativeness, together with competitive capabilities gained, leads to new buyers, and thus to new integrated relationships through the reputation effect. The hypotheses of the study are tested on a sample of 106 Turkish firms supplying components to the automotive, electronics and white goods industries, and a variety of materials to the construction industry.

The rest of the study is organized as follows: In Part Two, the theoretical and empirical literature is summarized. Part Three defines the hypotheses. In Part Four the variables and measurement methods are defined. In Part Five the data and sampling methods are presented. Part Six documents the data analysis and findings, and Part Seven concludes the discussion.

2. LITERATURE REVIEW

In contemporary practice and in the literature, arm's length relations and integrated ties are accepted as the two ends of the spectrum of the industrial organization. Arms' length relations refer to market relations in which all activities are directed by the price mechanism and are impersonal; that is, no social interactions take place. Integrated relations on the other hand are long-term ties which results from planned and spontaneous coordination and are marked by the existence of inter-firm cooperation and affiliation (Powell 1990). The environmental factors that make integrated relationships effective and efficient are resource dependency, change and demand for speed, trust, fairness in sharing of risks and gains, and effective conflict resolution. Integrated relationships have comparative advantages when

involved parties are dependent on each other's resources; the business environment requires fast access to information, and is flexible and responsive to changes; there is probability of future business; not only gains but also the variance of operations are shared among the participants; and sanctions are normative rather than legal (Jarillo 1988).

In this context, there exist some unique factors that determine the intensity of the relationship and make integrated relationships efficient and effective. These unique factors have been researched empirically by relationship marketing theorists. Relationship marketing is a discipline with a primary focus on building strategies involving business-to-business and business end-customer relationships.

According to Hakansson and Snehota (2006) and Sacchetti and Sudgen (2003), the main characteristics of integrated relationships are cooperation, trust, reciprocity and the belief that the objectives can only be reached collectively. Organizations operate in a concentrated environment, where the other actors are treated as unique counterparts and the parties are linked in terms of resources and activities. The linkages are continuous and complex and are based on interdependencies and mutual orientation.

An empirical study by Morgan and Hunt (1994), on the other hand, showed that successful relationship marketing requires commitment and trust, which are key mediating variables between the five antecedents (relationship, termination costs, relationship benefit, shared values, communication and opportunistic behavior), and the five outcomes (acquiescence, propensity to leave, cooperation, functional conflicts, and decision making uncertainty).

Mohr and Spekman (1994) based their field study on the premises that integrated relationships have some characteristics that distinguish them from conventional business relationships and that more successful partnerships exhibit these characteristics more intensely than less successful ones. They found that the key variables determining a partnership's success were coordination, commitment, trust, communication quality, information sharing, participation, joint problem solving, and avoiding the use of smoothing over problems.

In the context of buyer supplier relations, the performance of integrated relationships was analyzed by supply chain theorists. In a study conducted on consumer product manufacturers, Rosenweig, Roth and Dean (2003) hypothesized a positive relationship between supply chain integration intensity, relational outcomes and business performance.

They used eight measures: product quality, delivery reliability, process flexibility and cost leadership for relational outcomes and return on assets, sales growth, buyer satisfaction and revenues from new products for business performance. Their results showed that the manufacturers with high integration intensity achieve superior product quality, delivery reliability, process flexibility, and cost leadership. When embedded within the organization's operating processes, these capabilities are inherently difficult to imitate, thus providing a competitive advantage over less highly integrated firms in the industry. In turn, these enhanced competitive capabilities generally improve business performance. Taken together, these findings indicate that the positive effects of supply chain integration on performance are farther-reaching than previously believed.

The previous empirical studies concentrated on the effect of integrated relationships on the performance of buyers and retailers. This paper contributes to the existing literature by analyzing the same problem from the perspective of manufacturing sector suppliers.

An important implication of integrated buyer supplier relations is the involvement of suppliers in new product development. In many industries, firms integrate their material and component suppliers into a new product development stage in order to achieve a competitive advantage by decreasing the new product development time, improving quality, reducing the costs of new products, and facilitating the launch of new products (Petersen et al.2005, Karahan 2006). Still, the supplier integration into new product development is contingent on the intensity of the relationship and technical complexity of the process (Primo and Amundson 2002).

Kasauf and Celuch (1997) tested the effect of relationship orientation on suppliers' technological innovativeness from a sample of 62 firms in U.S. and Canadian powder metallurgy parts industry. Their main finding was that firms with a high relationship orientation were smaller and more optimistic about the industry's ability to support a greater number of firms in the future, and perceived faster technology change than firms with a low relationship orientation.

This study further contributes to the existing literature by examining the source and the effect of suppliers' innovativeness on their relational performance. Previous studies have shown that integration intensity factors, which are unique to integrated relationships, increase

relational performance, but the effect of supplier innovativeness on this performance remains unclear. This study aims to fill this gap.

It is common for suppliers to pursue integrated relationships with more than one buyer. However, the effect of a successful integrated relationship in creating other successful relationships remains as another open question in the literature. This study further contributes to the existing literature by analyzing the possibility of a two-way relationship between integration intensity and relational outcomes. It is questioned whether an effective integrated relationship with a specific buyer leading to improvements in the suppliers' relational outcomes create new integrated relationships or not.

3. HYPOTHESES

As previously mentioned, network and supply chain management theories view the establishment and management of effective relationships as a prerequisite for gaining a competitive advantage in environments requiring fast access to information, flexibility and responsiveness to changes. The competitive advantages resulting from integrated relationships which are referred to as relational outcomes in this study are measured in four different dimensions. The first is product quality: that is, effective integration among suppliers and buyers enables consistent improvements in quality (Rosenweig et al. 2003, Tan et al. 1999). The second is delivery reliability, of which the most important aspects are on-time delivery and reduced lead time resulting from relationship-building practices such as the information sharing and integration with buyers (Gunasekaran et al. 2001, Rosenweig et al. 2003). The third is process flexibility, which refers to making the products and services available to meet individual buyer demands; this has become possible mainly through flexible manufacturing systems and information (Gunasekaran et al. 2001). The development of process flexibility requires a great deal of collaboration and integration with buyers (Rosenweig et al. 2003). The last dimension is cost leadership capability, which enables manufacturers to be more price-responsive and subsequently work with higher margins than competitors due to lower manufacturing costs. Tightly integrated suppliers are able to decrease their costs more than their less integrated counterparts (Rosenweig et al. 2003).

Given the previous studies' findings on the association between integrated relations and relational outcomes, the first hypothesis is formulated as follows:

H1: A supplier that maintains integrated relationships with some or all of the buyers performs better in relational outcomes, which are increased product quality, delivery reliability, process flexibility, and cost leadership, compared to those that maintain only arm's length relationships.

The level of expected improvements in relational outcomes is associated with the efficiency and effectiveness of integration. Effective integrated relationships are characterized by special features, which are unique characteristics of these relationships (Mohr and Spekman 1998). Based on the previous literature, these special features are classified into five broad categories. The first is commitment, which refers to the willingness of the trading partners to exert effort on behalf of the relationship. A committed partner wants to endure the relationship indefinitely and is willing to work at maintaining it (Morgan and Hunt 1994, Mohr and Spekman 1994, Zineldin and Jonsson 2000). The second is mutual trust, which is given by the firm's belief that the other company performs actions that will result in positive outcomes. Once trust is established, the parties learn that joint efforts will lead to outcomes that exceed what the firms could achieve by acting alone (Anderson and Narus 1990). The third is cooperation, which reflects the extent to which parties engage jointly in planning and goal setting, allowing mutual expectations to be established and cooperative efforts to be specified (Mohr and Spekman, 1994, Anderson and Narus 1990). The fourth is communication, which describes the systematic availability of information that allows parties to complete tasks more effectively (Mohr and Spekman 1994). It includes such aspects as accuracy, timeliness, adequacy, and the credibility of information exchanged; moreover, it is essential for achieving common goals and objectives (Mohr and Spekman 1994). The fifth and last is conflict resolution. Conflict exists in inter-organizational relationships due to inherent interdependency between parties. In integrated relationships, the manner in which partners resolve the conflict has important implications on success (Mohr and Spekman 1994). In such relationships, the internal resolution of conflicts is essential and mutually satisfactory solutions can only be attained with joint efforts (Anderson and Narus 1990).

The strength of these factors determines the intensity of the integration and is expected to be positively associated with the level of improvements in relational outcomes. Hence the first part of the second hypothesis is formulated as follows:

H2A: The integration intensity between suppliers and their industrial buyers is positively associated with relational outcomes, which are increased product quality, delivery reliability, process flexibility and cost leadership.

Another important consequence of intensively integrated relationships is the increased innovativeness structure of the involving parties. When suppliers and buyers work in harmony over time, transaction-specific know-how accumulates, which helps continuously implement new product designs or changes (Rosenweig et al. 2003). Furthermore, improvements in new product development speed are more significant when firms involve critical suppliers in the new product development process (Primo and Amundson 2002). Suppliers with a high relationship orientation perceive faster technology change than firms with low relationship orientation (Kasauf and Celuch 1997).

The findings of the above-mentioned studies imply that innovativeness increases when suppliers maintain efficiently integrated relationships with their buyers. Furthermore, the level of improvements in the relational outcomes is expected to be positively associated with the intensity of integration. As a result, innovativeness is expected to be a mediating factor between integration intensity factors and relational outcome measures. Hence the second part of the second hypothesis is formulated as follows:

H2B: The integration intensity between suppliers and their industrial buyers is positively associated with relational outcomes, which are increased product quality, delivery reliability, process flexibility, and cost leadership through the mediation of innovativeness.

The second hypothesis implies that, a positive association is expected between the integration intensity factors and relational outcome measures, both directly and through the mediation of innovativeness. In recent years, industries have increased their level of outsourcing and are relying more heavily on their suppliers as a source of competitive advantage.

Thus, determining which suppliers to include in the supply chain has become a key strategic consideration.

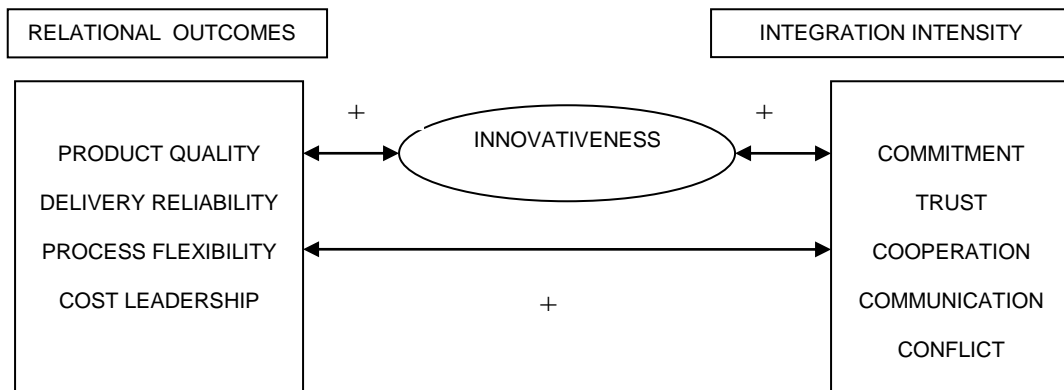
The supplier selection processes has important implications since improved performance in relational outcomes increases the probability of capturing new buyers (Choi and Hartley 1996). This suggests a possible reverse association between relational outcome factors and integration intensity measures, both directly and through the mediation of innovativeness. The improvements in relational outcomes attained through effective integration and the resulting increased innovativeness structure, open a path to new integrated relationships of which intensity is a function of both the performance attained in relational outcomes and the increased innovativeness structure. Hence, the third hypothesis is formulates as follows:

H3A: Relational outcomes, defined as product quality, delivery reliability, process flexibility, and cost leadership, are positively associated with the integration intensity between suppliers and their industrial buyers.

H3B: Relational outcomes, defined as product quality, delivery reliability, process flexibility, and cost leadership, are positively associated with the integration intensity between suppliers and their industrial buyers through the mediation of innovativeness.

The second and third hypotheses indicate a two-way relationship between integration intensity and relational outcomes, both directly and through the mediation of innovativeness. The hypothesized model is presented in Fig 1.

Fig 1. The Model



4. MEASUREMENT

The hypotheses are based on two constructs, which are integration intensity and relational outcomes, and one mediating variable, innovativeness. Two sets of variables are used to measure the two constructs.

To measure the five integration intensity factors, (commitment, trust, communication, cooperation and conflict resolution) the scales developed and validated by Morgan and Hunt (1994), Mohr and Spekman (1994), Zineldin and Jonsson (2000) and Walter (2003) are selected as reference. Seventeen items, which were used commonly by more than one scale, are identified and adapted. The factors, items and scales from which they were adapted from are presented in Table 1.

Table 1. Factors and Scales

Factor	Item number	Scales and Related Factor Names			
		Morgan and Hunt	More and Spekman	Zineldin and Jonsson	Walter
commitment	1	commitment		commitment	commitment
	2			commitment	
	3				
trust	1	trust		opportunistic behavior	trust
	2				trust
	3			trust	trust
cooperation	1		participation	cooperation	
	2		participation	shared values	
	3		participation	cooperation	
	4		strategic partnership	shared values	
	5		strategic partnership		
communication	1	communication	information sharing	communication	
	2	communication		communication	
	3			communication	
conflict resolution	1	conflict resolution	coordination		
	2		conflict resolution		
	3	conflict resolution			

To measure the four relational outcome factors (improved product quality, delivery reliability, process flexibility and cost leadership) Rozenweig et al. (2003) developed a scale consisting of eleven items, which detailed in Table 2. In the context of this study, Rozenweig et al.'s (2003) scale is used.

Table 2. Rozenweig, Roth and Dean's Scale

Factor	Number of Items	Scale
Product Quality	3	5 Point scale from low to leader
Delivery Reliability	3	5 Point scale from low to leader
Process Flexibility	3	5 Point scale from low to leader
Cost leadership	2	5 Point scale from low to leader

Besides the two sets of variables, “new product development speed” and “research and development budget size relative to competitors” were used as proxies for innovativeness, which is the mediating variable.

Seventeen items measuring integration intensity factors, eleven items measuring relational outcomes factors and two items measuring innovativeness are combined in a single questionnaire. The questionnaire had two sections. The first section consisted of thirteen items measuring relational outcomes and innovativeness variables preceded by three questions about the firm (name, labor and ownership structure) and two other questions about the demographics of the respondent (position in the firm and length of employment with that company). The respondents are asked to proceed to the second section only if their company maintained an integrated relationship with specific buyers. If there were more than one integrated buyer, participants were asked to fill out the second part separately for a maximum of three relationships.

The second part consisted of seventeen questions measuring integration intensity, one covariate item and two open-ended questions preceded by two questions about the buyer (the ratio of the volume of sales to that buyer to total sales volume and the length of the relationship). The covariate item aimed to identify the relative importance of each integration intensity factor for that specific relationship. The first open-ended question aimed to assess other integration intensity factors, which are important for the continuity of the relationship and were not mentioned in the questionnaire, whereas the second open-ended question aimed to identify the source of the first contact with that buyer. The final questionnaire consisted of one copy of the first section and three copies of the second section. (Appendix 1)

The questionnaire is tested in a pilot study consisting of a sample of nine firms supplying products to footwear, construction, tire and automotive industries. To measure the reliability of integration intensity, relational outcomes and innovativeness measures, internal consistency method was used. Internal consistency is measured through the coefficient alpha. Alpha levels above 0.7 are typically considered acceptable (Churchill 1979). All alpha levels were either approaching or above the 0.7 level with the exception of one factor: commitment. One of the three items that measured commitment was heavily unreliable, so it was removed from the questionnaire. The remaining two items produced an alpha level of 0.654 which is considered an acceptable level.

5. DATA AND SAMPLING

The model is tested on a sample of 106 Turkish firms supplying components to automotive, electronics, and white goods industries, and cement, concrete, iron and steel, aluminum, bricks, and glass products to the construction industry.

The four sectors, automotive, electronics, white goods and construction, are considered strategic due to their size and contribution to the national economy (Taşkın 2004). The member lists of the Association of Automotive Parts and Component Manufacturers, White Goods Supplier Association, and the Association of Building Material Producers were used to create a sample list. The full list consisted of 411 firms.

The survey was posted to sales managers of the companies through e-mail followed by subsequent telephone calls for five weeks. In total 106 of 411 firms accepted to join to the survey. So the response rate is 26%. The size distribution of the companies, measured by sales volume, is presented in Table 3.

Table 3. The Sample

Sales Volume (annual)	Construction	Components	Total
<\$45,000,000	6	29	35
\$45,000,000 - \$100,000,000	12	24	36
>\$100,000,000	21	14	35
Total	39	67	106

Among 106 firms, 46 had only one type of relationship whereas 60 firms preferred the portfolio approach. 67 firms had integrated relationships with a total of 142 buyers. The average number of integrated buyer per firm was 2.12. The mean length of relationships was 12.8 years and the mean transaction volume was 26% of total sales volume of the supplying firm. The relationship structure of the firms in the sample is presented in Table 4.

Table 4. Relationship Structure

Relationship Structure	Sectors		Total
	Construction	Components	
Single Relationship-Arms' Length	17	22	39
Single Relationship-Integrated	0	7	7
Portfolio of Relationships	22	38	60
Total Number of Firms	39	67	106
Total Number of relationships	30	112	142

6. ANALYSIS AND FINDINGS

6.1. Effects of the Type of Relationships on Relational Outcome Measures

It was expected that integration intensity factors, (commitment, trust, communication, cooperation, and conflict resolution), should lead to substantial improvements in relational outcomes (product quality, delivery reliability, process flexibility, and cost leadership), both directly and through the mediation of innovativeness. Of the 106 firms in the sample, 67 had an integrated relationship at least with one buyer, whereas the remaining 39 followed a single arm's length relationship strategy. The univariate differences among the two groups are presented in Table 5.

Table 5. Univariate Differences

Factor	Group	Frequency	Mean	Standard Deviation	t-value	Significance
Quality	integrated	67	4.637	0.426	1.537	0.127
	arm's length	39	4.488	0.566		
Delivery Reliability	integrated	67	4.583	0.395	1.205	0.231
	arm's length	39	4.479	0.476		
Process Flexibility	integrated	67	4.453	0.528	1.733	0.086
	arm's length	39	4.257	0.614		
Cost Leadership	integrated	67	4.104	0.600	1.739	0.085
	arm's length	39	3.885	0.673		
Innovativeness	integrated	67	4.194	0.657	2.541	0.013
	arm's length	39	3.846	0.718		

Firms having at least one integrated relationship performed better in all variables; however the difference was statistically significant for innovativeness at the 5% confidence level and for process flexibility and cost leadership at the 10% confidence level.

To assess multivariate differences, the logistic regression method is used. The dependent variable, relationship structure was set 0 for firms with integrated relationships and 1 otherwise. The independent variables were delivery reliability, process flexibility, cost leadership and innovativeness. Quality was left out of the analysis as it was highly correlated with innovativeness. The statistical results are presented in Table 6.

Table 6. Multivariate Differences

Final Model		Goodness of Fit			Pseudo R-Square		Coefficients			Correct Classification	
		pearson	deviance				Chi-square	Significance			
2 log likelihood	88.451	Chi-square	82.566	77.336	Cox and Snell	28%	Delivery Reliability	9.951	0.191	Integrated	90%
Chi-square	35.080	Significance	0.034	0.077	Nagelkerke	39%	Process Flexibility	8.533	0.074	Arm's Length	67%
Significance	0.028				McFadden	25%	Cost Leadership	11.905	0.036	Overall	81%
							Innovativeness	14.880	0.011		

The multivariate statistics results are quite similar to those for the univariate statistics; innovativeness and cost leadership are significant discriminators at the 95% confidence level and process flexibility at the 90% level. Logistic regression indicates that by analyzing the innovativeness, process flexibility and cost-effectiveness of a company, the probability of correct inference of its relationship structure is 81%.

Both univariate and multivariate statistics partially supported the first hypothesis. Firms having an integrated relationship with at least one buyer are more innovative and perform better in all relational outcome measures than those maintaining only an arm's length relationship; the difference however is statistically significant only for innovativeness, process flexibility and cost leadership, both univariately and multivariately.

6.2.Integration Intensity Factors that Affect Relational Outcomes

The expected positive association between the relational outcome variables and integration intensity factors and the mediating role of innovativeness is tested with 4 hierarchical

regression equations for a sample consisting of 142 relationships. The regression equation is given below.

$$[Y_i = c + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + \alpha_5 X_5 + \alpha_6 X_6 + \beta_1 \delta_1 + \beta_2 \delta_2 + \beta_3 \delta_3 + \varepsilon]$$

Where

Y_1 = product quality, Y_2 = delivery reliability, Y_3 = process flexibility, Y_4 = cost leadership

X_1 = commitment, X_2 = trust, X_3 = cooperation, X_4 = communication X_5 = conflict resolution

X_6 = innovativeness

δ_1 = size; categorical variable; 1= small; 2=medium; 3=large

δ_2 = ownership; dummy variable; 0=local firms; 1= foreign capital firms

δ_3 = sector; dummy variable; 0=component; 1= construction

The contribution of innovativeness to the explanatory power was significant for all regression equations at the 99% confidence level (Table 7).

Table 7. Mediating Role of Innovativeness

	block 1	block 2			
dependent variable	independent variables	independent variables	change in R ²	change in F	Significance
quality	communication	communication, innovativeness	15%	29.636	0.000
delivery reliability	communication	communication, innovativeness	8%	13.167	0.000
process flexibility	trust, conflict	trust, conflict, innovativeness	13%	26.168	0.000
cost leadership	trust, size	trust, size, innovativeness	10%	19.128	0.000

The fifth regression equation aimed to measure the association between innovativeness and integration intensity factors:

$$[Y_6 = c + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + \alpha_5 X_5 + \beta_1 \delta_1 + \beta_2 \delta_2 + \beta_3 \delta_3 + \varepsilon] \text{ Where } Y_6 = \text{innovativeness}$$

Table 8. Coefficients of Integration Intensity Variables

dependent variables	R ²	coefficients of independent variables						
		commitment	trust	cooperation	communication	conflict	innovativeness	size
quality	27%				0.196**		0.277*	
delivery reliability	18%				0.190**		0.171*	
process flexibility	31%		0.231*			0.228**	0.293*	
cost leadership	25%		0.392*				0.265*	
innovativeness	19%			0.203**	0.414**			

* significant at 99% confidence level
 ** significant at 95% confidence level

The Hypotheses 2A and 2B imply a positive association between dependent and independent variables both directly and through the mediation of innovativeness for all regression equations. The findings reveal that the expected direct and indirect dual association is achieved only between the dependent variables product quality and delivery reliability, and the independent variable communication. An effective communication structure with buyers improve suppliers' product quality and delivery reliability; when coupled with effective cooperation, this leads to further improvements in the quality of the products and in the reliability of the delivery by increasing innovativeness capabilities of the supplying firms.

The supplying firms exploit the innovativeness capability gained through effective communication and cooperation with the buyers to produce better quality products and to deliver them more reliably and find ways to increase the cost-efficiency and flexibility of their processes. Besides the indirect effect of communication and cooperation on process flexibility and cost leadership, trust has a direct effect on both. Trusting relationships with buyers make suppliers more cost-effective and more flexible. Effective conflict resolution between parties is important for process flexibility implying that conflicts emerge mostly at the manufacturing stage. Finally the association between the control variable size and cost leadership is negative suggesting that small firms are more efficient in the control and use of resources.

In summary, innovativeness emerges as an important mediating variable between the independent variables communication and cooperation and all dependent variables. In other words, suppliers that improve their innovativeness capability through effective communication and cooperation with buyers improve the quality of their products as well as the flexibility of their processes, find ways to deliver their products more reliably, and achieve all these improvements in a cost-efficient way. Still, trustful relationships are essential for attaining flexibility in processes and for cost-efficiency; furthermore joint conflict resolution has an important role in improving process flexibility. The factor commitment is insignificant in the regression analysis. These findings partially support the hypotheses 2A and 2B.

The identified positive association between integration intensity factors and relational outcome variables replicates the findings of Rozenweig et al. (2003) which revealed that the manufacturers with high integration intensity achieve superior product quality, delivery reliability, process flexibility, and cost leadership. Kasauf and Celuch (1997) found a positive association between relationship orientation measured with cooperative and collaborative

actions of the involving parties and innovativeness defined as perceived technology change. This study supports the positive association only between two of five variables measuring relationship orientation (communication and cooperation) and innovativeness.

6.3.Relational Outcome Factors that Affect Integration Intensity

The aim of the next five regression equations was to test the reverse model, which is the third hypothesis which stated: “relational outcomes defined as product quality, delivery reliability, process flexibility and cost leadership are positively associated with the integration intensity between suppliers and their industrial buyers”. To test the expected mediating role of innovativeness, the hierarchical regression method is used.

The regression equation is given below.

$$[Y_i = c + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + \beta_1 \delta_1 + \beta_2 \delta_2 + \beta_3 \delta_3 + \varepsilon]$$

where

Y_1 =commitment, Y_2 =trust, Y_3 = cooperation, Y_4 =communication, Y_5 = conflict resolution

X_1 =product quality, X_2 = reliability, X_3 = process flexibility, X_4 = cost leadership

X_5 = innovativeness

δ_1 = size; categorical variable; 1= small; 2=medium; 3=large

δ_2 = ownership; dummy variable; 0=local firms; 1= foreign capital firms

δ_3 = sector; dummy variable; 0=component; 1= construction

As shown in Table 9, change in R2 was significant only for the factors of commitment, cooperation and communication.

Table 9. Mediating Role of Innovativeness

dependent variable	block 1	block 2	change in R ²	change in F	Significance
	independent variables	independent variables			
commitment	none	innovativeness	9%	14.551	0.000
trust	flexibility,cost,ownership	flexibility,cost,ownership innovativeness	0%	0.090	0.765
cooperation	flexibility,cost	flexibility,cost,innovativeness	5%	8.338	0.005
communication	flexibility,cost	flexibility,cost,innovativeness	4%	7.503	0.007
conflict resolution	flexibility	flexibility,innovativeness	0%	0.639	0.425

The sixth regression equation aimed to measure the association between innovativeness and relational outcome factors:

$$[Y_i = c + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + \beta_1 \delta_1 + \beta_2 \delta_2 + \beta_3 \delta_3 + \varepsilon] \text{ Where } Y_6 = \text{innovativeness}$$

The summary of the findings of the last six regression equations are presented in Table 9.

Table 10. Coefficients of Relational Outcome Variables

dependent variables	R ²	coefficients of independent variables					
		quality	delivery reliability	process flexibility	cost leadership	novativeness	ownership
commitment	9%					0.159*	
trust	20%			0.187**	0.196**		-0.162**
cooperation	24%			0.195**	0.160**	0.182**	
communication	24%			0.140**	0.152**	0.137**	
conflict	14%			0.331*			
innovativeness	31%	0.552*		0.357*			

* significant at 99% confidence level
 ** significant at 95% confidence level

Hypotheses 3A and 3B imply a positive association between dependent and independent variables both directly and through the mediation of innovativeness for all regression equations. What the findings reveal however is that, the expected direct and indirect dual relationship is attained only limitedly in three regression equations between the independent variable process flexibility and dependent variables commitment, cooperation and communication. The analysis indicates that innovativeness is a mediating variable between two relational outcome measures (quality and process flexibility), and three integration intensity factors (commitment, cooperation and communication). The suppliers that produce high-quality products with flexible techniques gain innovativeness capability and are consequently able to build committed and cooperative relationships as well as to communicate more efficiently with their buyers.

Flexibility in production processes is an important attribute that directly contributes to trust, cooperation, communication and conflict resolution, which are unique to integrated relationships. Finally, cost leadership helps to strengthen trust, cooperation and communication structures of integrated relations. The association between ownership and trust is negative: local firms are found to be more trustworthy than firms with foreign capital. All of these findings partially support hypotheses 3A and 3B.

Anderson et al. (1989) found that in effective supply chains, firms choose suppliers based largely on cost and delivery performance. On the other hand, Choi and Hartley (1996) showed that the consistency, reliability (in quality and delivery), flexibility, price, and service are the key factors determining supplier selection processes of firms. According to the findings of this study, process flexibility, cost leadership and product quality gained through increased innovativeness are the key supplier attributes that increase the probability of capturing new buyers. The findings comply with those of Anderson et al. (1989) for cost leadership and with those of Choi and Hartley (1996) for product quality and process flexibility, but contradict with both of these studies for delivery reliability.

Figure 2. Two-way associations

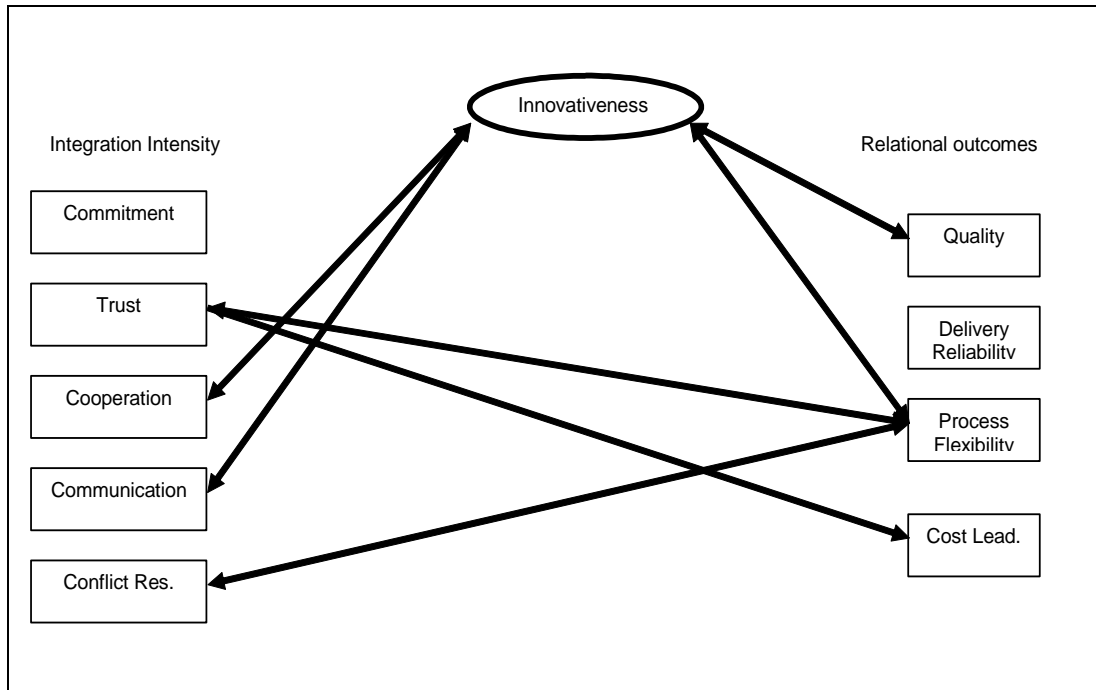


Fig. 2 shows the two-way associations among the two sets of variables. The two-way model has several strategic implications for the supplying firms. First, innovativeness is an important attribute; once gained through effective cooperation and communication, it improves product quality and helps the firm to be more flexible in its operations, which in turn leads to new cooperative and communicative relationships. Second, trustful relationships strengthen competitive advantage in the flexibility of processes and the effectiveness of cost

management, which in turn lead to new trustful relationships. Lastly, flexibility in processes affects and in turn is affected positively by conflict resolution techniques.

7. CONCLUSION

The purpose of this study was to examine the nature and the consequences of the relationship between suppliers and their industrial buyers. This study was based on the premise that integrated types of relationships have unique characteristics such as commitment, trust, communication, cooperation and joint conflict resolution which differentiate them from traditional business relationships. The strength of these unique features determines the intensity of the relationship and creates some relational outcomes (i.e. product quality, delivery reliability, process flexibility and cost leadership) that enrich a firm's competitive advantage in the market. Innovativeness is an important attribute for the firms as it affects both the intensity of the relationship and the magnitude of the relational outcomes achieved. Along with the competitive advantages gained through improved relational outcomes, innovativeness leads to new buyers and therefore to new integrated relationships through the reputation effect.

The findings as a whole showed a two-way association between four integration factors (trust, communication, cooperation and joint conflict resolution), and three relational outcome variables (product quality, process flexibility and cost leadership), either directly or through the mediation of innovativeness. An effective integrated relationship with a buyer characterized by bilateral trust, communication, cooperation and joint conflict resolution, leads to improvements in product quality, process flexibility and cost-effectiveness of the supplying firm; once gained, these relational capabilities give the way for subsequent integrated relationships through the reputation effect.

This study has important contributions to the existing literature. Innovativeness, by mediating communication and cooperation with product quality, delivery reliability, process flexibility and cost leadership, contributes significantly to the competitive strength of the suppliers. Hence, integration intensity factors unique to integrated relationships increase the innovativeness capability and consequently relational performance of suppliers.

Moreover there exists a positive association between integration intensity factors and relational outcome variables. The competitive advantage gained through improvements in

relational outcomes creates a reputation in the market and attracts the attention of other industry firms that seek integrated suppliers. As a result, the relationship between the intensity of integration and relational outcomes is two-way: an effective integrated relationship with a buyer leads to improvements in relational outcomes which result in new integrated buyers.

The study has several important limitations. Due to the lack of transparency in the local market, the total sample was restricted to 411 firms. Low response rate reduced the sample size to 106 firms. Furthermore, due to the reluctance to share information, small firms (with sales of less than 30,000,000 TL) were not included in the analysis. Technology, an important source of power, is composed of product quality and innovativeness. This study emphasizes the importance of innovativeness emerging from integrated relationships; still, the extent of the contribution of the buyers on suppliers' innovativeness remains an open question to be answered in future studies.

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APPENDIX 1

ANKET

Firma ünvanı :
Firmanın toplam çalışan sayısı :
Firmanın ortaklık yapısı
Özel sektör (ana sanayi) : %
Özel sektör (diğer) : %
Yabancı sermaye : %
Kamu sektörü : %
Firmadaki pozisyonunuz :
Bu firmadaki toplam çalışma süreniz :

1- Aşağıda, bir şirketin içinde bulunduğu pazardaki rekabet gücünü gösteren bazı faktörler sıralanmıştır. Her faktör için rakiplerinizi gözönüne alarak, şirketinizin sektör içindeki rekabet gücünü belirtiniz.

		<u>Rakiplere Kıyasla</u>			
	çok düşük	düşük	orta	yüksek	lider
a) ürün kalitesi	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b) ürün güvenilirliği	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c) ürün ömrü	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d) teslimat güvenilirliği	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e) teslimat hızı	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f) müşteri şikayetlerine cevap verme hızı	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g) ürün çeşitliliği	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h) müşteri taleplerine cevap verme süresi	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ı) üretim hacmini değiştirme hızı	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j) ürün satış fiyatı	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k) üretim maliyeti	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
l) AR-GE bütçesi (ytl/ yıl)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

m) yeni ürün geliştirme hızı

2- Ana sanayi firmaları içinde, entegrasyon içinde çalıştığınız müşterileriniz var mıdır?

a)var b) yok

Eğer son soruya yanıtınız “yok” ise, diğer sayfaları yanıtlamayınız.Göstedığınız ilgi için teşekkür ederim.

Eğer son soruya yanıtınız “var” ise lütfen aşağıdaki soruları entegrasyon içinde çalıştığınız ana sanayi müşterileriniz (en fazla 3) için ayrı ayrı yanıtlayınız. Gizliliği korumak adına müşterilerin ünvanları sorulmamaktadır. Müşteriler A,B,C olarak sıralanmış, ve her bir müşteri için ayrı anket formu düzenlenmiştir.

Anket formundaki sorulara müşteriniz ile aranızdaki ilişkiyi en iyi ifade eden seçeneği (X) ile işaretleyerek yanıt veriniz.

Hassasiyetiniz ve gösterdiğiniz ilgi için teşekkür ederim.

Müşteri A Toplam Cironuz İçindeki Payı: %..... Toplam ÇalışmaSüreniz:.....Yıl

1. Müşterimizle aramızdaki ilişkiyi geliştirmek ve uzun yıllar boyunca korumak şirketimiz için önemli hedeflerden bir tanesidir.
()kesinlikle katılmıyorum ()katılmıyorum ()fikrim yok ()katılıyorum ()kesinlikle katılıyorum
2. Müşterimiz dürüst ve güvenilirdir.
()kesinlikle katılmıyorum ()katılmıyorum ()fikrim yok ()katılıyorum ()kesinlikle katılıyorum
3. Müşterimiz bizim öneri ve tekliflerimizi dikkate alır.
()kesinlikle katılmıyorum ()katılmıyorum ()fikrim yok ()katılıyorum ()kesinlikle katılıyorum
4. Müşterimizle aramızda doğru ve tam zamanlı bir bilgi alışverişi bulunmaktadır.
()kesinlikle katılmıyorum ()katılmıyorum ()fikrim yok ()katılıyorum ()kesinlikle katılıyorum
5. Müşterimiz ile oluşan anlaşmazlıkları karşılıklı görüşme yoluyla çözeriz.
()kesinlikle katılmıyorum ()katılmıyorum ()fikrim yok ()katılıyorum ()kesinlikle katılıyorum
6. Müşterimiz ödeme konusunda bize verdiği taahhütleri yerine getirir.
()kesinlikle katılmıyorum ()katılmıyorum ()fikrim yok ()katılıyorum ()kesinlikle katılıyorum
()kesinlikle katılmıyorum ()katılmıyorum ()fikrim yok ()katılıyorum ()kesinlikle katılıyorum
7. İşlerin zamanında ve tam olarak bitirilmesi sorumluluğunu müşterimizle paylaşıyoruz.
()kesinlikle katılmıyorum ()katılmıyorum ()fikrim yok ()katılıyorum ()kesinlikle katılıyorum
8. Müşterimizle sık sık yüzyüze görüşmeler yaparız.
()kesinlikle katılmıyorum ()katılmıyorum ()fikrim yok ()katılıyorum ()kesinlikle katılıyorum
9. Oluşan hataların sorumluluğunun ortak olduğuna inanırız.
()kesinlikle katılmıyorum ()katılmıyorum ()fikrim yok ()katılıyorum ()kesinlikle katılıyorum
10. Müşterimiz bizimle olan iş ilişkisini sürdürmeye önem vermektedir.
()kesinlikle katılmıyorum ()katılmıyorum ()fikrim yok ()katılıyorum ()kesinlikle katılıyorum
11. Müşterimiz önemli kararlar alırken şirketimizin çıkarlarını da gözetir.
()kesinlikle katılmıyorum ()katılmıyorum ()fikrim yok ()katılıyorum ()kesinlikle katılıyorum
12. İş ilişkimizi ilgilendiren konularda müşterimizle birlikte karar alırız.
()kesinlikle katılmıyorum ()katılmıyorum ()fikrim yok ()katılıyorum ()kesinlikle katılıyorum
13. Müşterimize, yardıma ihtiyaç duyduğu her zaman, koşullar ne olursa olsun destek veririz.
()kesinlikle katılmıyorum ()katılmıyorum ()fikrim yok ()katılıyorum ()kesinlikle katılıyorum
14. Müşterimiz bizi yeni gelişmelerle (ürün, proses,...) ilgili bilgilendirir.
()kesinlikle katılmıyorum ()katılmıyorum ()fikrim yok ()katılıyorum ()kesinlikle katılıyorum
15. Müşterimiz ile aramızda oluşan fikir ayrılıklarını birlikte çalışmanın bir parçası olarak görür ve bu fikir ayrılıklarının her iki tarafa da katkı sağlayacağına inanırız.
()kesinlikle katılmıyorum ()katılmıyorum ()fikrim yok ()katılıyorum ()kesinlikle katılıyorum
16. İşimizle ilgili bir problemle karşı karşıya kaldığımızda müşterimiz bize koşulsuz destek verir.
()kesinlikle katılmıyorum ()katılmıyorum ()fikrim yok ()katılıyorum ()kesinlikle katılıyorum
17. Aşağıda sıralanmış olan etmenleri müşterinizle olan iş ilişkinizin sağlıklı olarak yürümesini sağlamaları açısından puan vererek değerlendiriniz.(1=en az önemli 5=en önemli)

- A. Bilgi Alışverişi :
- B. İşbirliği :
- C. Güven :
- D. İş ilişkisine olan bağlılık :
- E. Birlikte problem çözme :

18. Bu müşteri ile ilk iş ilişkiniz nasıl başladı?

- A. Müşterinin sizi bulup teklif getirmesi ile
- B. Sizin müşteriye bulup teklif götürmeniz ile
- C. Bir başka müşterinin referansı ile
- D. Ortak bir tanıdığın referansı ile
- E. Fuarlar vasıtası ile
- F. Diğer (Lütfen belirtiniz).....