How could supplier development activities increase buying firm performance?

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Abstract

The increased purchase of products and services from external suppliers has augmented the dependence of buying firms on the capabilities and performance of their suppliers. so, the implementation of supplier development activities is a need of manufacturing organizations to make long-term relationships with their key supplier to increase supplier capabilities. This research model introduced six elements of supplier development programs such as information sharing within and between firms, communication methods, top management support, trust between trading partners and supplier quality support and also revealed three major factors of buying firm's performance such as inventory management, product quality improvement and financial performance. Product quality improvement, as a mediator endogenous variable in the purpose model, was also studied and tested. A cross-sectional method was used to gather data from 377 Iranian manufacturing SMEs. The measures and hypotheses were analysed with the help of Structural Equation Modelling (SEM). The research supported the idea that information sharing within firms, communication methods, top management support and trust between trading partners have a positive influence on information sharing between firms. Further, the research conducted the positive effects of information sharing between firms on inventory management and product quality on buying firms. Also, the research showed the positive effect of supplier quality support on product quality improvement and financial performance. In addition, the study conducted also revealed that product quality improvement played a partial mediation effect on supplier quality support and financial performance of manufacturing SMEs.

Keywords: information sharing within firms, communication methods, top management support, trust between trading partners
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1 Introduction

Most industrial firms to survive in the ever-increasing local and global competition today and to achieve long-term advantage have a strong relationship with business partners through communicating and sharing viable information with them to improve product quality, enhance delivery performance and get better flexibility. Thus, the implementation of supplier development activities is more important not only to gain a competitive advantage but also to

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develop suppliers for a long-term partnership with business partners. In addition, the increased interest in supplier development and buyer-supplier relationships results in emphasizing the status of strategic collaboration of buyers and suppliers to increase financial performance and build up stronger and long-term relationships. This program does not only provide a competitive advantage to the companies but also makes strong relationships with their potential suppliers [1]. Firms in a supply chain need to communicate with their business partners due to the competitive business atmosphere. Firms in the supply chain have to establish a relationship with other suppliers and customers, which are supported by their supply chain management (SCM) activities [3]. Supply chain management involves every production process, including storage, in-process and finished goods list from the launch of production to the end of consumption [4]. Over the last few decades, businesses have documented the supply chain as an important element of business strategy, which firms require to supervise, manage, build and enhance mutual relationships with their partners. Therefore, sharing information between the suppliers and buyers will be an important factor to successfully utilize SCM. The need for purchasing firms to manage and develop their supply chains in an effective manner is intensified by their high dependence on suppliers [5]. The key issue of suppliers, partners and customers in SCM is to build a mechanism and will be able to align all parties concerned about enhancing organizational performance. Thus, the aim of this research is to investigate the relationships among different dimensions of supplier development supports, i.e. communication methods, information sharing within and between firms, top management support, trust between trading partners, supplier management support, and buying firm performance criteria. With this purpose, the current study attempts to present a conceptual model by integrating supplier development activities and firm purchasing performance. The model provides sufficient information for managers to make correct decisions and concentrate their efforts on developing their suppliers and increasing their performance.

1.1 Problem statement

Iranian small and medium-sized manufacturing enterprise lacks supplier development activities to excel in their line of business. Supplier development activities are crucial in the globalized competitive business environment; an extensive study on supplier development activities is necessary for Iranian SMEs to increase their business performance. However, the Responsiveness of purchasing and manufacturing firms related to the effect of suppliers on the performance of the company and competitiveness has been increased [6]. Thus, supplier development activities (SDA) from the buyer's viewpoint concern about increasing poor performance of the suppliers [7]. Due to intense business competition nowadays, sharing information among companies is not easy because it may help the manufacturers but harm the retailers. In the environment of the supply chain, transmitted information from a manufacturer to a retailer can be "leaked" to other competing retailers both directly and indirectly [8].

Moreover, Iranian-manufacturing SMEs are also facing some information problems (2012 AFACT Yearbook) such as the shortage of information related to marketing (domestic and overseas markets, price arrangements, packaging supplies, etc.). The Iranian SMEs are also low industrial exporters because of unfavourable regulations and low quality of products that lead to enhanced cost and decreased profit for SMEs. The lack of financial information and industrial standing of SMEs allows investors to choose good businesses used for their investment and also, they have a minor amount of knowledge related to buyer and supplier relationships and raw materials which they need.

In spite of recognizing the task of inter-firm collaboration in generating sustainable rates, many firms became unsuccessful in the direction of understanding the predictable advantages of such associations [9]. Fugate et al. [10] pointed out that sharing sale information and inventory data can decrease this outcome. They have found that information sharing is lacking among and between SME vendors and customers. According to Iran's Majlis Center of Research (2007), SMEs are facing problems such as a lack of communication skills quick changes in ICT technology and weaknesses in material and information flow. In most case scenarios, SME managers lack knowledge of all aspects related to suppliers of production, services and raw materials.

Recently, Carr and Kaynak [2] reviewed literature related to supplier development programs, the procedure of supplier development, and the issues that persuade buying firms' participation. Unfortunately, there is a lack of inventory management studies, which creates a gap in the literature on research that investigates on the relationship of supplier development activities, inventory management performance quality improvement and financial performance. Therefore, with such lacking up in the current supplier development activities, there is a serious need to address these issues accordingly.

1.2 Research questions

The main question of this study is "How could supplier development activities increase buying firm performance?" According to the main question, six sub-questions could be postulated. Consequently, this study aims to address the following questions:

1. What is the effect of information sharing within firms, communication methods, top management support, trust between trading partners on information sharing between firms and supplier quality support?
2. What is the effect of information sharing between firms on buying firms inventory management and product quality improvement in Iranian manufacturing SMEs?
3. To what extend does supplier quality support affect buying firms product quality improvement and financial performance of Iranian manufacturing SMEs?
4. Is there a significant relationship between supplier quality support and financial performance, mediated by product quality improvement in Iranian manufacturing SMEs?
5. What are the effects of product quality improvement on financial performance in Iranian manufacturing SMEs?
6. What are the effects of inventory management on financial performance of Iranian manufacturing SMEs?

Management of strategic risks Strategy:

In the production companies of every industry, the methods of production, financing, etc. are almost the same. In this case, the only strategy that can help the company to create a competitive advantage is the sales and customer-oriented strategy; Therefore, in an organization, whatever sales and customer orientation will be compared to the competitors of the same industry. Therefore, the strategy factor is considered to be the ratio of sales to the average sales of the industry:

$$\text{Strategy} = \frac{sales_i - \mu sales}{\sigma sales}$$

where in

$sales_i$: means sales and service income.

$\mu sales$: indicates the average sales and service revenue per year in each industry.

And $\sigma sales$: indicates the standard deviation of sales and service income in each year in each industry.

Operational risk management operation:

The process of the company's risk manager seeks to reduce operational risks, which ultimately increases the efficiency and performance of the organization. "Better performance" is one of the results of better use of the company's risk management, and it should reduce the overall risks that lead to the failure of the organization and, as a result, increase the efficiency and value of the organization. Therefore, asset turnover, which is defined as sales of total assets, is considered as a measure of operational efficiency. Higher operational efficiency should reduce the overall risk of company bankruptcy and increase the performance and value of the company.

$$\text{Operation} = \frac{sales}{Total\ \sigma ssets}$$

Sales: indicator of sales

total assets: indicates the sum of total assets

2 Research design

This study undertook with the purpose to improve the model to be implemented in the Iranian industrial SMEs, increase their performance and make sure their business survival. Based on the objectives of this research, it is both an applied and basic research. The purpose of this thesis was to improve the model through contributing to top management support, trust between trading partners and the supportive effects of inventory management. Specifically, the model in this study represents the supplier development theory. Besides, this research also employed the social capital theory for examining the contributory effects of trust between trading partners and top management support on Information Sharing between firms. Moreover, the explanatory (hypotheses testing) nature of this research approves that it is actually basic research. At the same time, this research is an applied one since it attempts to solve an actual problem so this is applied research. Furthermore, this study objects at improving the theoretical model with the purpose of creating it more useful and feasible for Iranian industrial SMEs. Therefore, some evidence show Iranian industrial SMES lacks implementations of supplier development program in their line of business. Some research and report indicate that several industrial SMEs have experienced bankruptcy and shortcoming as a result of weaknesses in some selected criteria but this expectantly will be enhanced through a successful implementation of supplier development program. Iranian National Productivity reports show that the Iranian industrial SMEs have failed to implement the new tools and method to enhance their performance. Furthermore, the documents indicate

that being unaware of the criteria capable of enhancement through a proper implementation of supplier development activities, a large number of manufacturing SMEs have been bankrupted and unpractical in Iran.

Firstly, the researcher reviewed some accompanied studies to find the problems the Iranian manufacturing SMEs mostly encounter. Earlier studies conducted on the same population (case) as of this study could be reliable bases for identifying the problem for future research [11].

Having determined the research problems, a thorough review of the related literature was done based on the research questions and objectives specified. This conducted review was based on the theoretical arguments, that is, a thorough literature of both applied theories including supplier development and social capital theories, as well as the earlier studies in the area of the research. The review of previous literature supports to construct the theoretical framework of this study. Further, the causal relationship among elements of supplier development activities and performance were posed as the hypotheses of the research. All hypotheses of this study are supported by the supplier development theory and social capital theory or both, also by the past studies. The finding of this study specifying the nature of investigation is explanatory or causal.

This study applied a questionnaire examining the data collected in the Iranian manufacturing SMEs. This specified that researcher had minimal interference. There were 44 items in the questionnaires that 30 items of supplier development elements and 14 items are related to the performance of buying firms.

The actual data from the Iranian industrial SMEs were collected after developing the questionnaire. The data of this cross-sectional study was collected from October 2012 to early January 2013. To collect the essential data from the Iranian manufacturing SMEs, the original questionnaire was first translated from English into Farsi.

The 44 questions measuring nine constructs of the model were translated through "back-to-back methods" recommended by [12]. To be more specific, firstly, the questions were translated to Farsi by a researcher. Formerly, independent translator who had not seen the initial English questionnaire was requested to translate questions back into English. Formerly, independent translators who had not seen the original English questionnaire were asked to transform questions back into English. This helps the researcher to control the content of the questions and assurance escaping of any misinterpretation. In this study, the collected data were descriptively and inferentially analysed from the Iranian industrial SMEs. The research model was tested by means of the collected data through the SEM technique.

2.1 Reliability and validity of the questionnaire

The validity of the questionnaire is the ability to measure the desired attribute by means of the measuring tool of that attribute. The most common way to evaluate the validity of the questionnaire is to check the quantity and quality of the questionnaire questions by experts. The questions of the questionnaire of this research were reviewed and modified to confirm its validity. The reliability of a measuring instrument mainly refers to the accuracy of its results. Reliability refers to the accuracy, reliability, stability or repeatability of test results. If a test gives different results every time it is run on a number of samples, that test will not be reliable, and in fact it will not measure anything correctly, and if a test does not measure something correctly, it will not give us any useful information [15]. In order to evaluate the reliability of the questionnaire, SPSS 20 software and Cronbach's alpha method will be used. Cronbach's alpha coefficient was invented by Cronbach and is one of the most common methods of measuring reliability or reliability of questionnaires. The meaning of the validity or reliability of the questionnaire is that if the measured attributes are re-measured with the same instrument and under the same conditions and at different times, the results will be almost the same. Cronbach's alpha is calculated as follows:

$$\alpha = \frac{k\overline{C}}{\overline{V} + (k-1)\overline{\overline{C}}}$$

in these relationships, k is the number of questions,

S_i^2: the variance of the i-th question,

σ^2: the variance of the total number of questions,

$\overline{C}$: the average variance between questions,

And $\overline{V}$: the average variance of the questions.

The closer Cronbach's alpha index is to 1, the higher the internal correlation between the questions and, as a result, the more homogeneous the questions. Cronbach suggested a reliability coefficient of 45% as low, 75% as moderate and acceptable, and 95% as high.

2.2 Population of research

According to research findings, the objective of this study was to examine the relationship between supplier development activities and buying firms with three dimensions of Iranian manufacturing SMEs. Therefore, the population was all manufacturing SMEs in Iran. There were 14007 small and medium sized enterprises where all group of nine industries, which shows in Table 3.1, work as manufacturing SMEs in Iran, and are considered as a stratified sampling technique [14]. However, in this thesis, the target population refers to those registered companies in the database of Iran annual statistical book.

2.3 Data collection

The sample for his study included different industrial sub-population since it is vital to provide enough information for each group of the industry. Moreover, these groups are homogenous since the manufacturing units in each group of industries are comprised of similar human resources, processes, raw materials, applied technologies, etc. Therefore, the stratified random sampling was used for this thesis. Using the stratified random sampling, nine industries in a group working as industrial SMEs in Iran constitutes a stratum. Samples were selected randomly (through random selection of their codes) from each stratum. This ensures the researcher to have adequate number of representatives as well as sufficient data and information from all different industrial groups with different characteristics (strata). Also, this can guarantee the generalization of the results to all industrial groups. This study used the Iranian manufacturing SMEs, which have been obtained from Iran annual statistical book as the source of population frame. This thesis has used a stratified random sampling method as the most appropriate one because stratified random sampling method minimizes the common survey bias by making respondents heterogeneous [16]. meeting the thesis requirement, respondents from different regions/states in Iran were chosen. Furthermore, some of the worldly known electronic organizations are based in these states. The subgroups included the form's working department and employment period.

In addition, based on the following formula, the researcher should send out questionnaires to 377 units for 95% confidence level and 5% sampling error for a population of around 14,000 members. Consequently, 377 questionnaires were distributed to Iranian manufacturing SMEs in out of which, it is expected that 280 completed questionnaires will be obtained.

$$N_s = \frac{(N_p)(p)(1-p)}{(N_p - 1)(B/C)^2 + (p)(1-p)}$$

N_s = total questionnaires to be sent

P = response rate

N_p = size of population

B = Margin of error

C = Z score related to confidence level

2.4 Correlation coefficient

The Correlation coefficient is a statistical tool to determine the type and degree of relationship of one quantitative variable with another quantitative variable. The correlation coefficient is one of the criteria used to determine the correlation between two variables. The correlation coefficient shows the intensity of the relationship as well as the type of relationship (direct or inverse). This coefficient is between 1 and -1 and is equal to zero if there is no relationship between two variables. The correlation between two random variables X and Y is defined as follows:

$$r_{xy} = \frac{\overline{x.y} - \overline{x}.\overline{y}}{\sqrt{S_x^2.S_y^2}}$$

3 Hypotheses testing results

This thesis used AMOS software to conduct the structural equation modelling. The results of hypothesis testing through AMOS are provided in Table 1. Hair et al. [13] described that in AMOS, it is assumed in the null hypothesis that no significant effect between the variables is reported, while the research hypothesis assumes a significant effect between them. If the p-value is lower than 0.05, then the null hypothesis is rejected while the alternative hypothesis is confirmed.

The structural model of this study consists of 4 exogenous variables (information sharing within firms, methods of communication, trust between trading partners and top management support) as well as 5 endogenous variables (information sharing between firm, supplier quality support, inventory management, product quality improvement and financial performance).

Table 1: Parameter Estimate for Structural Model of Supplier Development Factors and Inventory Management, Product Quality Improvement and Financial Performance

Path	Standardized Estimate	Standard Error	Critical Ratio	p-value
ISW → SQS	0.537	0.103	5.218	*** (Supported)
ISW → ISB	0.152	0.063	2.403	0.016 (Supported)
CM → ISB	0.228	0.080	2.854	0.004 (Supported)
TMS → ISB	0.357	0.075	4.266	0.000*** (Supported)
TBT → ISB	0.220	0.075	2.955	0.003 (Supported)
ISB → IM	0.375	0.076	4.367	0.009 (Supported)
ISB → PQI	0.137	0.068	2.014	0.004
SQS → PQI	0.381	0.068	2.014	0.004 (Supported)
SQS → FP	0.381	0.062	6.141	0.000*** (Supported)
IM → FP	0.313	0.072	4.367	0.000*** (Supported)
PQI → FP	0.102	0.046	2.223	0.026 (Supported)

4 Structural equation modelling (SEM)

4.1 Measurement model

A measurement model should be defined before evaluating the structure model fit to show that the nine unobserved constructs are truly reflected by the 44 measurement variables (information sharing within firms, communication methods, top management support, trust between trading partners, information sharing between firms, supplier quality management, product quality improvement, inventory management and financial performance). The fit of the measurement model is totally determined by CFA. The finding indicates that the estimated measurement model through standardized factor loadings showed the relationships between the observed variables and constructs. Bellow Figure shows the estimation results in a diagram and the estimations for error variance of the measurement items. Moreover, the measurement model for measuring the statistics is also shown in bellow Table: Mediating Effects of PQI on SQS and FP, the estimation of direct model (SQS and FP) shows that the model is a perfect fit (chi-square = 1.932, p-value= 0.000, GFI= 0.955, CFI= 0.973, IFI= 0.973, RMSEA= 0.058).

Table 2: Fit Indices Model for Direct Structural Model (SQS)

Model	NPAR	CMIN	DF	P	CMIN/DF	GFI	AGFI
Default	21	65.687	34	0.001	1.932	0.955	0.927
Standard	55	000	0				
Independence	10	1212.072	45	0.000	26.935	0.242	0.311
Model	NFI Delta1	RFI Rho1	IFI Delta2	TLI Rho2	CFI	RMSEA	RMR
Default	0.946	0.928	0.973	0.964	0.973	0.058	0.078
Standard	1.00		1.00		1.00		0.000
Independence	0.000	0.000	0.000	0.000	0.000	0.305	0.780

Figure 1: Total Model

Table 3: Total Model

Factors	Composite Reliability	ISW	CM	TM	TBP	ISB	SQS	IM	PQI	FP
Information sharing within firms	0.77210	1.00								
Communication methods	0.82371	0.28	1.00							
Top management support	0.77470	0.19	0.29	1.00						
Trust between trading partners	0.77065	0.20	0.32	0.35	1.00					
Information sharing between firms	0.81093	0.29	0.36	0.36	0.36	1.00				
Supplier quality support	0.80035	0.28	0.54	0.19	0.25	0.26	1.00			
Inventory management	0.77045	0.19	0.42	0.26	0.19	0.23	0.26	1.00		
Product quality improvement	0.77573	0.006	0.12	0.19	0.25	0.08	0.05	0.28	1.00	
Financial performance	0.81784	0.29	0.568	0.195	0.295	0.5	0.46	0.38	0.139	1.00

Table 4: Overall, Goodness of Fit Model

Goodness of fit	Satisfactory Range	Measurement Model
P	$P > 0.05$	0
CMIN/DF	≤ 3	1.424
RMSEA	≤ 0.08	0.039
CFI	≥ 0.8	0.937
TLI	≥ 0.8	0.931
IFI	≥ 0.8	0.938

4.2 Assessment of structural model

For assessing the structural model, this study set the confirmatory factor analysis (CFA) for overall structured model. In fact, after having satisfied measurement model, it is easy to assess the overall structure model. However, all the criteria of fit were examined to assess the final structural model after several re-specifications. The result of model fit is shown in Table 4.
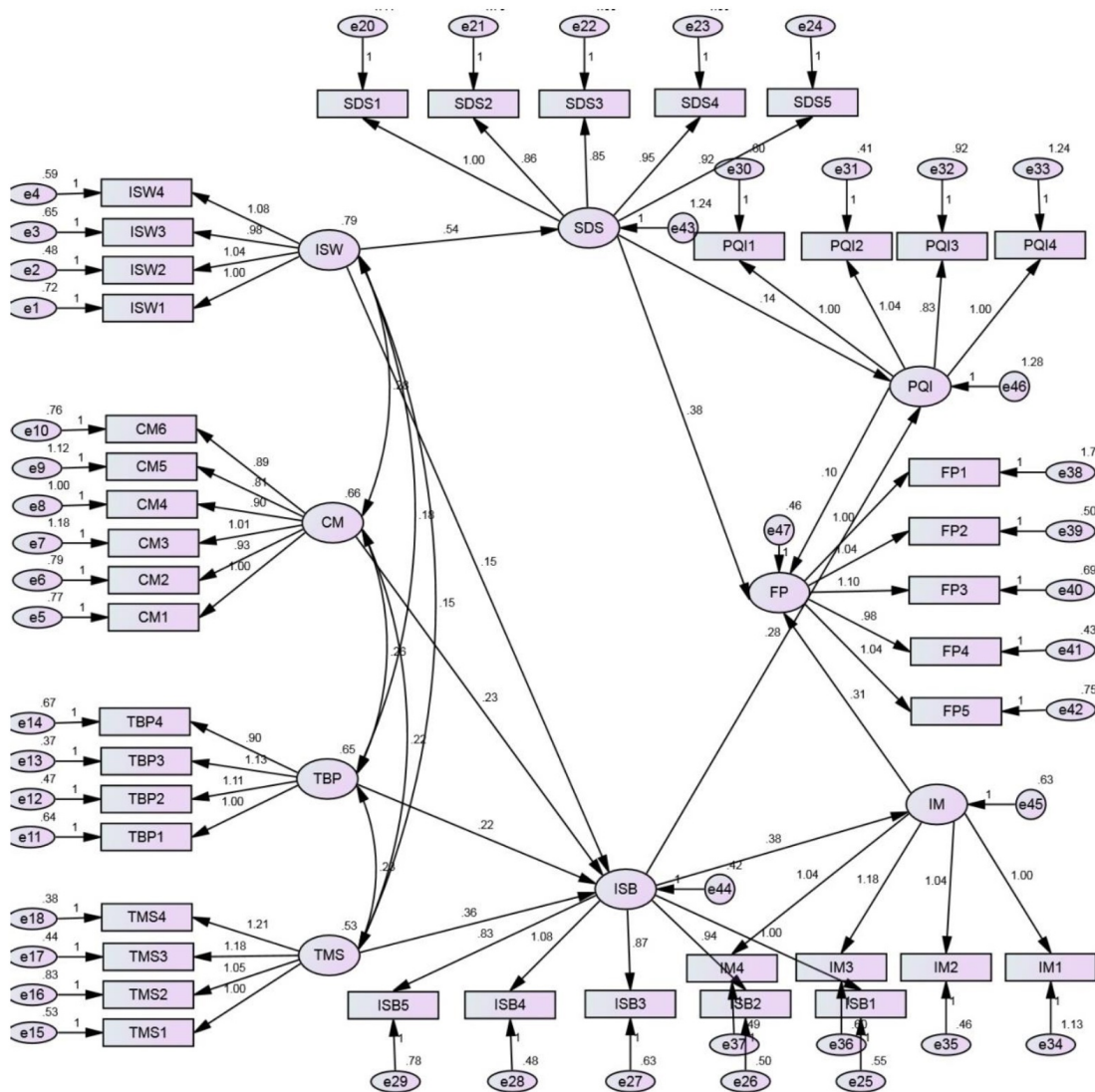

Figure 2: Path Coefficient of Hypothesis Model

In general, as a well-specified model, the predictor was closely linked to latent variable, so the observed variables are sufficiently assessed. Therefore, the confirmed reliability of each variable has a high R^2 value. The hypotheses

were evaluated through fit indices and in the structural equation model, the path coefficient was significant in the 9 latent variables. Therefore, hypotheses H1 to H10 were tested (see Figure 2). The values of path coefficients indicate that there is a strong relationship between the latent variables.

5 Hypotheses testing results

This thesis used AMOS software to conduct the structural equation modelling. The results of hypothesis testing through AMOS are provided in Table 5. Hair [13] described that in AMOS, it is assumed in the null hypothesis that no significant effect between the variables is reported, while the research hypothesis assumes a significant effect between them. If the p-value is lower than 0.05, then the null hypothesis is rejected while the alternative hypothesis is confirmed.

The structural model of this study consists of 4 exogenous variables (information sharing within firms, methods of communication, trust between trading partners and top management support) as well as 5 endogenous variables (information sharing between firm, supplier quality support, inventory management, product quality improvement and financial performance), were explained in section 3. This thesis offered 14 causal hypotheses between 9 constructs.

5.1 Mediating effects of PQI on SQS and FP

The estimation of direct model (SQS and FP) shows that the model is a perfect fit (chi-square = 1.932, p-value= 0.000, GFI= 0.955, CFI= 0.973, IFI= 0.973, RMSEA= 0.058).
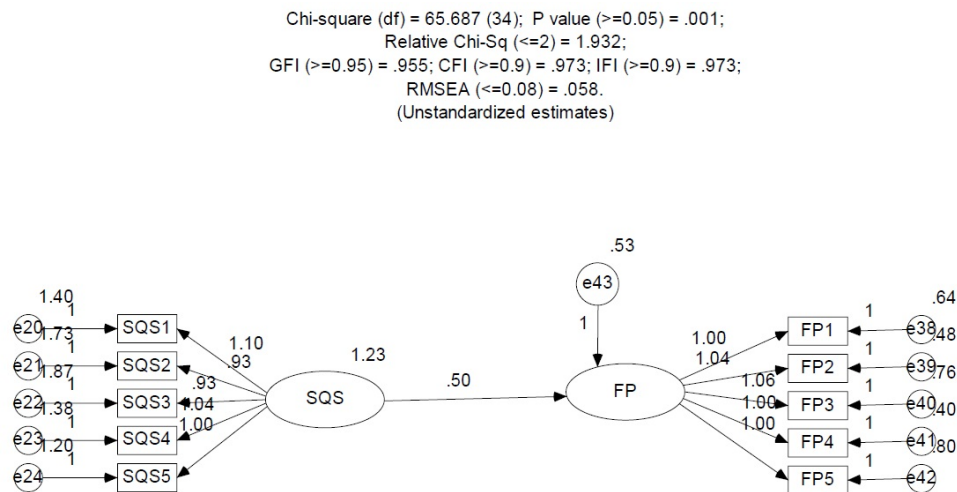

Figure 3: Direct Model

Table 5: Fit Indices Model for Direct Structural Model (SQS)

Model	NPAR	CMIN	DF	P	CMIN/DF	GFI	AGFI
Default	21	65.687	34	0.001	1.932	0.955	0.927
Standard	55	000	0				
Independence	10	1212.072	45	0.000	26.935	0.242	0.311
Model	NFI Delta1	RFI Rho1	IFI Delta2	TLI Rho2	CFI	RMSEA	RMR
Default	0.946	0.928	0.973	0.964	0.973	0.058	0.078
Standard	1.00		1.00		1.00		0.000
Independence	0.000	0.000	0.000	0.000	0.000	0.305	0.780

Direct and mediation effect of supplier quality support on financial performance can be interpreted as follows:

1. Based on direct model (Figure 3), supplier quality support has a significant direct effect on the financial performance ($\beta = 0.50$) (see Table 4).
2. Based on purpose model (Table 4), supplier quality support has a significant relationship with product quality improvement and financial performance ($\beta = 0.13$, $\beta = 0.38$).
3. The financial performance is dependent on product quality improvement ($\beta = 0.10$).

6 Findings within supplier development criteria

Based on the statement of the social capital and supplier development theory, there are casual associations between the six elements of supplier development program. However, six casual hypotheses were assumed to describe the relationship among six elements of supplier development after studying some specific theoretical arguments and earlier study, the results obtained from the examination of the six hypotheses of SMEs in Iran are discussed below:

H1. Information sharing within firm has a positive and casual effect on supplier quality support:

Information sharing within firms and supplier quality support as critical success component of supplier development activities. The results of SEM and AMOS software indicate affirmative for regression coefficient, as it equals to 0.537. Moreover, p-value for this specific test is 000, which is less than 0.05, and this shows that information sharing within firms has a significant effect on supplier quality support. Thus, the statistical analysis accepts this hypothesis. Sharing information inside the firms is essential for serving the organization members to recognize serious concerns about their suppliers. Moreover, it is a general activity using practical teams comprising elements from marketing sector, purchasing sector, engineering and production in order to resolve quality problem of suppliers. Information sharing within an organization plays an important role in supplier quality support. Information sharing within firm encourages collaboration and provide efficient support for suppliers. Consequently, Iranian manufacturing SMEs should have knowledge about the importance of sharing valuable information between sectors such as marketing, production, finance and engineering to increase efficiency and support supplier quality.

H2. Information sharing within a firm has a positive and casual effect on sharing information between firms:

Regression coefficient measured through SEM and AMOS software is positive, as it equals to 0.157. Moreover, p-value is 0.016, showing less than 0.05, and this shows that information sharing within firms has a positive effect on supplier quality support. Thus, the statistical analysis confirms this hypothesis. Sharing information within the sectors of an organization has a positive effect on a firm's performance. Thus, many literatures related to the supply chain coordination suggested that companies ought to strengthen their domestic relationship before trying to coordinate themselves with customers and suppliers. Thus, information sharing within departments is supported by information sharing between organizations. In an organization, information sharing is effective between organizations and supplier quality support. Information sharing within firms encourages collaboration and provides efficient support for suppliers. Consequently, Iranian manufacturing staff and managers should be aware of important information sharing with firms that without collaboration in side of department sharing information between firms is difficult. Thus, Iranian SMEs should have knowledge about new technology and tools of making relationship between sectors such as marketing, finance, operation and engendering department to increase confidence of managers to share information with outside partners.

H3: Communication method has a positive and casual effect on information sharing between firms:

Communication methods and information sharing are important elements of supplier development activities. The results of SPSS and AMOS software demonstrate that the path of regression coefficient is affirmative, and equals to 0.228. Moreover, p-value is 0.04, which is significant, and this shows that communication methods have a significant effect on information sharing between organizations. Thus, the statistical analysis approves this hypothesis. The finding of this study confirms that information sharing between firms is related to communication method used by firms. Consequently, it is more necessary for Iranian manufacturing SMEs to familiarize with new tools of communication such as EDI, Email, and computer-to-computer link and have knowledge about efficiency of traditional methods of communication as well as, face-to-face communication, post and fax to share information with partners.

H4: Top management support has positive and casual effect of information sharing between firms.

The results of SPSS and AMOS software demonstrate that the path of regression coefficient is affirmative, as it equals to 0.357. In addition, p-value for this specific test is 000, which is less than 0.05, and this shows that communication methods have a significant effect on information sharing between organizations. Thus, the statistical analysis approves this hypothesis. The social capital theory believed top management is a driver to making a relationship between buyers and suppliers. Top management support is necessary for applying and implementing any process throughout the organization. Top management must be permitted for changing the mentality and idea as the most important driving force showing that learning concepts are gradually considered. It is an internal component that has been recognized by previous research. Necessary information is usually provided by reliable and organizational sources and ensures the available investments. Information sharing is problematic without top management support because important changes and investments within organizations. A number of researchers believed that top management is the most significant driver for any successful changes in the organization. Only the top management is able to send

the right indicators to the affected divisions of the organization. To convince trading partner to join in information sharing, top-management's support role is very important and required. Subsequently, it is clear that top managers of Iranian industrial SMEs play vital roles in confirming an effective operation of their strategies and policies toward making benefits for their stakeholders. In fact, top managers should improve their strategies based on the vision and mission of the organizations. In order to attain this achievement, top management of Iranian Industrial SMEs should strongly support information sharing between business partners.

H5: Trust between trading partners has a positive and casual effect on information sharing between firms:

According to pervious literature, trust between trading partners is one of the important elements of supplier development activities used in this thesis. The path of regression coefficient is affirmative through retrieving information from the findings analysed by SPSS and AMOS software, as it equals to 0.220. Moreover, p-value for this specific test is 003, which is less than 0.05, and this shows that trust between trading partners has a significant effect on information sharing between organizations. Thus, the statistical analysis approves this hypothesis According to the social capital theory trust between trading partners is most important enabler of making a relationship between buyers and suppliers and is one of the essential issues affecting collaboration. If individual managers can build an effective trustful relationship with their partners, they are willing to have more frequent contacts and share more information. Such a relationship in the long run supports managers for exchanging sensitive information in the supply chain. This is what the firms are reluctant to do in the absence of trust since the worry is that the sensitive information about firms is revealed to competitors via their supply chain partners. Therefore, information about new products development plans, demand forecasts, and new technology adaption should be shared if the relationships between collaborative buyer-supplier and chain process are made. Sharing such information through the supply chain reuires adequate level of trust. Collaboration in the supply chain is the way to reduce operational costs and improve stakeholder worth through sharing information. Enough information is required to build up trust so higher supplier trust happens through exchanging sufficient information and knowledge. Subsequently, Iranian manufacturing SMEs should increase their performance through cooperating and working with trading partners.

H6: Information sharing has a positive relationship with buying firms inventory management:

The results of SEM and AMOS software indicate that the path of regression coefficient is affirmative, as it equals to 0.375. Moreover, p-value for this specific test is 009, which is less than 0.05, and this shows that information sharing between firms has a significant effect on inventory management. Thus, the statistical analysis approves this hypothesis. The finding of this study confirms that inventory management of buying firms is related to exchanging information between firms. The result of this study supports the finding of pervious researchers who have measures the effect of exchanging information on inventory management. Consequently, Iranian manufacturing SMEs should increase their knowledge to specific information related to inventory and should have acceptable range of stores to keep goods and aware of their partners' inventory level.

H7: Information sharing between firms has a positive effect on product quality of buying firms:

Using SPSS and AMOS software for analysing the data demonstrates that the path of regression coefficient is affirmative, as it equals to 0.275. Moreover, p-value for this specific test is 0.004, which is significant, and this shows that information sharing between firms has a significant effect on product quality improvement of buying firms. Thus, the statistical analysis accepts this hypothesis. The finding of this study confirms that product quality of buying firms is related to information sharing between firms. Information sharing with most important suppliers leads to increase product quality of buying firms. Consequently, Iranian manufacturing SMEs should be aware that sharing valuable information with key suppliers increase quality of product.

H8a: Supplier quality support has a positive and casual effect on product quality improvement:

The results of SPSS and AMOS software demonstrates that the path of regression coefficient is affirmative, as it equals to 0.137. In addition, p-value is 0.004, which is significant, and this shows that supplier quality support provided by buying firms has a positive effect on product quality improvement of the buying firms. Thus, the statistical analysis confirms this hypothesis. Buying firms with appraising performance of suppliers and getting feedback are able to educate and teach suppliers to solve problems affecting the suppliers' performance, in general. In fact, using high quality materials and parts is the most important step in producing products with high quality. Buying firms' product quality is positively affected by supplied components and materials and buying firms are actually needed. Consequently, Iranian manufacturing SMEs should try to educate and teach their suppliers' worker skills and make them aware of material used to make products and goods for themselves.

H8b: Supplier quality support provided by buying firms has a positive effect on financial perfor-

mance of buying firms:

Supplier quality support is an important element of supplier development activities. This hypothesis tries to show the effects of supplier quality support provided by buying firms and is positively related to buying firms financial performance. SEM and AMOS software were used to analysed the data and the finding indicates the positive regression coefficient, which equals to 0.381. In addition, p-value is 000, which is Significant, and this shows that supplier quality support provided by buying firms has a significant effect on financial performance of the buying firms. Thus, the statistical analysis accepts this hypothesis. The supplier development activities and assumption of social capital theory supported this relationship in the model. The finding of this study confirms that financial performance of buying firms is related to supplier quality support provided by buying firms. Reducing costs of buying firms' products, services and improving on time delivery of suppliers and enhancing the quality of received raw materials and removing breaks in procedure of production are the result of effective supplier quality support provided by buying firms. However, Iranian manufacturing SME should make a strong relationship with key suppliers and encouraged them to increase quality of supplied product to them.

H9: Inventory management has a positive relationship on financial performance:

The results shows that the path of regression coefficient is positive for SEM and AMOS software, as it equals to 0.313. Also, p-value is 000, that is significant, and it shows that inventory management of buying firms has a significant positive effect on the buying firms' financial performance. Thus, the statistical analysis accepts this hypothesis. The findings of this study confirm that financial performance is associated with good and perfect inventory management system. The result of this research also indicates that the enhancement in inventory performance leads to outright benefits for SMEs. Subsequently, manufacturing SMEs of Iran should be aware of costs related to inventory such as shipping, material handling and stock price related to financial performance of SMEs; thus, Iranian manufacturing SMEs should improve inventory performance and should be aware of advantage in this performance.

H10: Product quality of buying firms has a positive effect on buying firms financial performance:

The results show that the path of regression coefficient is positive for SEM and AMOS software, as it equals to 0.102. Also, p-value is 0.026, that is significant, and it shows that product quality of buying firms has a positive effect on the buying firms' financial performance. Thus, the statistical analysis accepts this hypothesis. The findings of this study confirm that financial performance is associated with good and perfect quality of product provided by companies. The elasticity of demand decreases with high standing quality of products and services; therefore, it is able to make easy for a company to charge premium price as a result of enhancing profits. Pervious researchers argue that profitability is boosted by better product quality for the reason that decreases in squander and better effectiveness enhances the profits on assets and also, they have found that loyalty of satisfied customers depends on improved products and service quality, which is converted into amplified sales. Consequently, Iranian manufacturing SMEs should increase the quality of product and service because the profitability of Iranian manufacturing SMEs depends on better product with high quality. Also, they should reduce waste to enhance output so all of them improve sales and market share and finally the result of all increasing financial performance of manufacturing SMEs.

7 Contribution

A major contribution of this thesis, in the context of Iran manufacturing SMEs, is the formation of a measurement model integrating the elements of supplier development programs, buying firm's inventory, the quality of product and finance. Particularly, this thesis confirms that there is an empirical relation between the research constructs proposed in the structural model of supplier development activities, inventory management, product quality improvement and financial performance of buying firms. Another contribution of this study is adding inventory management in research framework. The finding and result of this study show the relationships of information sharing between firms on inventory management and also demonstrated effects of inventory management on financial performance, which little work has done. Communication methods in previous research were used as an element of supplier development activities; they used this variable as advance communication methods and traditional communication separately but the current study brought advance and traditional communication method in combination as communication methods. It has a significant effect on supplier quality support and information sharing between firms.

Furthermore, previous studies rarely focused on the areas of supplier development activities and buying firms performance research have investigated effects in the relationships directly and indirectly among supplier development elements, inventory management, improving the quality of product and finance. Therefore, the multidimensional relationships between the six elements of supplier development activities were established, and three dimensions of buying firm's performance such as inventory management, product quality improvement and financial performance

have not been investigated in the previous studies. As the proposed research model in the present study focused on both direct and indirect effects in the relationships, it developed a research methodology to examine the interrelationships between the elements of supplier development practices, and buying firms performance. This thesis also examined the mediating effect of improving the quality product on supplier quality support and financial performance and demonstrated that product quality improvement was partial mediator between supplier quality support and financial performance.

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