Supply Chain Integration in Project-Based Organizations and its Effect on Performance

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Abstract

Supply chain integration has been proven to have a significant effect on the performance of organizations. The previous studies have been about the supply chain integration in manufacturing or service organizations and project-based organizations were not taken into consideration. The increasing importance of the project-based organization and their supply chains in delivering high-profile results highlights the need for studying different aspects of them regarding supply chain variables. Since it is a new area of investigation with very few related studies, the main question is "what effect does the supply chain integration have on the performance of the project-based organizations?" For evaluating the mentioned question, a questionnaire was used to gather data from 211 project-based organizations. Using structural equations modeling with a variance-based approach, the hypothesized relationships were tested. The results show that supply chain integration (the supplier integration and the internal integration of the organization) has a significant effect on the performance of the project-based organizations and the supply chain integration toward the customers does not have any effect on the performance of the project-based organizations. It is suggested that in project-based organizations, supplier and internal integration should be promoted using proper mechanisms.

Keywords

Supplier integration, Customer integration, Internal integration, Project-based organization, organization performance

1. Introduction

Nowadays various organizations and companies are active in the field of country construction and development and by effectively using the technology and production capacities are trying to move toward their goals like profitability, flexibility, and quality and help their countries to grow and develop much more than ever. The supply chain integration has been used in numerous studies as the desirable variable on the performance of the organizations. The positive effect of the supply chain integration on the performance of the organizations has been confirmed in these researches (Huo, 2012; Prajogo & Olhager, 2011; Kumar & et al, 2017; Lu & et al, 2017; Khan & Wisner, 2019). The supply chain integration was remarked by most companies and different factors affect it. The supply chain integration is defined as an action and cooperation process in which the existing companies in the chain cooperate in the sharing method to reach acceptable results (Pagell, 2004). Supply chain integration is a concept developed for the improvement and promotion of the performance of the supply chain (Krause *et al.*, 2007; Lii and Kuo, 2016) and finally the performance of the organization. The supply chain integration is the strength of the organization for appropriately integrating the internal duties (internal integration of supply chain), and the cooperation with the suppliers, customers, and the other copartners (Kim, 2009; Ayoub & et al, 2017).

On the other hand, the modern world has increasingly become project-based (Lundin & et al., 2015; Turner & Miterev, 2019). Regarding recent estimations, the share of project labors is about a third of GDP in the western countries (Schoper et al., 2018; Turner & Miterev, 2019). So, the project-based organizations (PBOs) have become an important factor in a new competitive area in different industries (Whittington, Pettigrew, Peck, Fenton, & Conyon, 1999; Turner & Miterev, 2019). Accordingly, due to the increasing importance of project-based organizations, we need a more profound perception of their management under different organizational preconditions.

The effect of the supply chain integration on the performance of the organization has been emphasized and assessed in numerous studies (Flynn et al., 2010; Wong et al., 2011; Prajogo & Olhager, 2011; Huo, 2012; Ataseven & Nair, 2017; Lu et al., 2017;) and most of the researchers believe that the supply chain integration improves their performance (Flynn et al., 2010; Wong et al., 2011; Prajogo & Olhager, 2012). Kumar et al. (2017) investigated the effect of the supply chain integration on its performance in the case of the food industry and showed that it will improve the performance of the supply chain, and so, it will improve the performance of the organization. In another research, the effect of the supply chain integration on the performance of the organization was studied and it was shown that the supply chain integration has a positive effect on the performance of the organization (Huo, 2012).

Despite numerous studies done on this subject, no research investigates the effect of supply chain integration on the performance and success of project-based organizations till now. So, some researchers have emphasized the necessity of the investigation of the relationship between supply chain and organizational performance in project-based organizations (Fawcett & Magnan, 2002; Flynn et al., 2010; Huo, 2012; Prajogo & Olhager, 2012; Qi et al., 2017). It must be said that even the concept of integration in project-based organizations have not been operationally defined, measured, and assessed. Nowadays, project-based organizations have significant importance in the business area.

1.1 Objectives

The main aim of this study is to investigate the effect of supply chain integration on the performance of project-based organizations and provide practical propositions for managers in the project-based organizations regarding their supply chain integration. Also, we aim to develop an operational measure for supply chain integration in project-based setting which can open a new area of investigation for the academics and researchers.

2. Literature review

2.1 Supply chain integration

A supply chain is a network of organizations that are linked to each other through a series of upward and downward processes to present the produced value to the customers in the form of a final product or a service (Gaudenzi & Christopher, 2016). The members of a supply chain are related to each other through different financial, material, or information flows. Each member has a different role in these chains. In other words, they may prepare the material, produce a part of the product, produce the final product, present logistics services, or be the customers of the final products (Stadtler & Kilger, 2002). Supply chain integration is defined as the management of a set of different activities. It is defined to integrally link the processes related to the businesses inside and outside the commercial agencies and remove the repetitive or unnecessary parts of the processes for creating a supply chain with better performance (Yuen & Thai, 2017). The supply chain integration emphasizes the connection and simplification through coordination, cooperation, interaction, and removing the repetitive elements in the commercial processes (Pagell, 2004; Vickery et al., 2010; Seo et al., 2015). The general goal of supply chain management is to manage the relations

in which the members of the chain can gain the maximum possible benefit. Reaching this goal needs the coordination and integration of the members. Supply chain integration can be defined as the strategic cooperation of the processes occurring inside and outside the organizations (Pagell, 2004; Flynn et al., 2010).

Flynn et al. (2010) categorize the supply chain integration into three groups: Customers' integration, suppliers' integration, the internal integration of the organization. The above categorization is done by a compilation of internal and external integration. In such categorization, the overall integration of the customers and suppliers is considered as the external integration and the internal integration of the organization is considered as the internal integration (Pagell, 2004; Campbell & Sankaranl, 2005; Zailani & Rajagopal, 2005).

2.2 Project-based organization performance

Bates & Holton (1995) implied that the concept of performance has a multidimensional structure whose assessment is different due to various factors. We can assume the performance only as of the record of the results obtained. Kane (1996) believes that performance is something that a person leaves out of himself and is separate from the goal. Bernardine et al. (1995) have defined performance as the results of the work. Schermerhorn et al. (2002) believe that performance refers to the quality and successes of the individual of group activity, and Armstrong (2006) considers the performance as a strategy based on the analysis of the basic factors of the success and the functional levels. The organizational performance can be considered as a criterion for measuring effectiveness and efficiency. Richard et al. (2009) believe that organizational performance includes three aspects of the organization's outputs: the financial performance of the organization, the performance of the organization in the product market, and the returning of the investors. Most organizations choose the project work as flexible and reliable structures for the development and production of their commodities and services. The primary specifications of the PBOs are: their design and production stages are organized around the projects (Liao & Qi, 2009). They usually produce disposable or at least highly customized products or services. They temporarily work with the existing companies along the chain of supplier and customer (Gann & Salter, 2000). The project organization uses the projects to present the systems, products, or services to its customers (Thiry & Deguire, 2007; Loufrani-Fedida & Missonier, 2015). In some cases, great companies may use the projects to develop the capabilities and capacities of the company. The project is a temporary activity to produce unique products, services, and results (Project Management Institute, 2017). So, the performance of the project-based organizations is measured by assessing the performance of the projects. The performance of the project-based organization includes all activities related to the assurance of the development of the Portfolios, programs, and projects (PPP) according to their plans and the realization of their goals. These activities include the measurement of their performance, improvement investigation, and the issuance of the instructions for the correction of the failed function. So, for this area, the desirable result of the project steering committee (PSC) is the great amount of success of PPP in the PBOs (Coleman, 2017).

2.3 Project-based organization

Since the focus of this research is on project-based organizations, we firstly propose a definition of these organizations. Davies & Hobday (2005) believes that project-orientation of an organization is related to the amount and levels of the organization’s authority in the allocation of the resources like financial and human sources. He believes that the projects are the main units of production, innovation, and competition, and there is no official relationship between the boundaries of the project in these organizations. Lindkvist (2004) believes that the project-based organization is an organization in which the highest priority belongs to the projects and the organization does all its works in the form of projects.

Miterev et al. (2017) define the project-based organization as an organization that:

- Defines the management by the project as their organizational strategy, and manages its work through the projects and plans as temporary organizations.
- Manages a series of any types of project pilots and plans in internal and external forms.
- Uses the project, plan, and management of the pilots as the special commercial processes.
- Has some permanent organizations like the portfolio group or the project management office to present the integrated functions.
- Applies a management pattern that reflects the ability of confrontation with the unreliability, contradiction, alteration, and cooperation.
- Considers itself as a project-based organization.

2.4 Hypotheses

So many studies have been fulfilled (Sezen, 2008; Kim et al., 2013; Kumar et al., 2017) showing that the supply chain integration can improve the performance of the supply chain, and so it will improve the performance of the organization. Seyoum (2020) states that supply chain integration has a significant impact on a company's performance, and the two are closely related. Veeragoudar and Bharamanaikar (2020) review the research conducted in the field of supply chain integration and organizational performance, emphasizing the impact of supply chain integration on the performance of an organization. However, in none of the previous researches, the effect of supply chain integration on the performance of project-based organizations has not been investigated. So, we will deal with this issue in the present study.

The supply chain integration is divided into three groups (Flynn et al., 2010):

- The integration toward the customers including the sharing of the strategic information and the cooperation of the companies with the customers to improve the joint view and planning. The integration with the customers can lead to a more profound perception of the anticipations and market opportunities, and as result, the companies can provide a more effective and faster response for the needs of their customers through adjusting their supply with their customers' demands.
- The integration toward the suppliers including strategic cooperation between a company and its suppliers in the framework of the commercial processes' management. This cooperation can include the sharing of information, strategic participation, cooperation in the planning process, joint product development, and so on.
- The internal integration in an organization: Wong et al. (2011) consider internal integration as a strategic system that is responsible for the integrity of the internal performance of an organization within a cost-effective method. So, internal integration includes the design, providing, and distribution of the products in the organization.

The positive effect of creating supply chain integration on the performance of the organization is studied in numerous researches. Huo (2012) showed the positive effect of the internal and external integration on the performance with respect to the organizational capabilities. His results show that internal integration improved external integration, and both internal and external integration, directly and indirectly, improve the performance of the company. In another research, Kumar et al. (2020) investigated the effect of operational strategy (cost, quality, flexibility, and delivery) and the supply chain integration on the performance of the innovation affected by educational orientation. The results of this research that was done by studying 243 companies in England show that the educational orientation affects the supply chain integration, but does not directly affect the performance of the innovation. Although supply chain integration has various aspects, it has not been separately investigated in this research (Kumar et al., 2020).

In another research, the relationships between the supply chain integration and different aspects of performance were vastly investigated, and it is experimentally shown that the internal integration, the supplier integration, and the customer integration significantly affect the performance and success of the companies (Ataseven & Nair, 2017).

The organization does its works in the form of projects in a project-based organization, and the highest priority belongs to the projects (Lindkvist, 2004). The supplier integration including the main qualifications is related to the coordination with the suppliers (Flynn et al. 2010) and must be considered in the organizations. In research done in Vietnam, Zhang et al. (2018) using the experimental documents imply that supplier integration has a positive relationship with the performance of the organization and can improve the performance of the organization. However, there is no research focused on the investigation of the relationship between supply chain integration and organizational performance in project-based organizations. The supplier integration will lead to accurately and fast delivering the requirements and commitments of the project regarding the logistics to the suppliers, and they can provide the materials and requirements for the project. With this attitude, the project activities will be probably done on time, and the costs of the project will not exceed the programmed amount. This will lead to the improvement of the performance of the project and the project-based organization. Thus, based on explanations we propose:

H1: The integration toward the suppliers has a positive effect on the performance of the project-based organization.

Customer integration includes the abilities and competencies related to the coordination with the customers (Flynn et al., 2010) that are essential and necessary for the success and appropriate performance of the organization. Customer integration is significantly related to the operational performance of the organization (Koufteros et al., 2005; Germain & Iyer, 2006) and has a positive effect on the performance of the organization (Flynn et al., 2010). As a result of the integration with the customers, the needs of customers and their wishes for changes rapidly enter the mechanisms of the project planning and they can be applied in the design of the project, if necessary. This will lead to the reduction of the changes' costs and subsequently prevention of the delay occurring and increment of project costs and finally the

improvement of the performance of the project-based organization. Also, as the result of the improvement of the communication with the customers, the current state of the project progress and the occurred happenings will be delivered to the customers on time, the assessment and perception about the project will become better in the customers' mind, and they will receive a more positive perception of the project and organization's performance. This in turn will have a positive effect on the future relationships between the customer and the organization, loyalty creating, and so the better performance of the organization. Therefore, this must be studied in project-based organizations. Thus, based on explanations we propose:

H2: The integration toward the customers has a positive effect on the performance of the project-based organization.

The internal integration provides a mechanism through which the personnel of production and buying can cooperate and make a sense of belonging (Zhao et al., 2011; Zhang et al., 2018). So, the personnel of the organization will have much more tendency to share their personal and essential information, agree on the decisions, and act in the lateral communication channels (Yeung et al., 2009). The internal integration of the organization makes the personnel able to help each other and confront the problems and disagreements through talking and agreement (Zhao et al., 2011; Zhang et al., 2018). The internal integration has a great role in the simplification of the operation and proposing opportunities for the simultaneous engineering and modulations of the process and making a joint view among the personnel of an organization (Dröge et al., 2004; Lai et al., 2012). Thus, based on explanations we propose:

H3: the internal integration of an organization has a positive effect on the performance of the project-based organization.

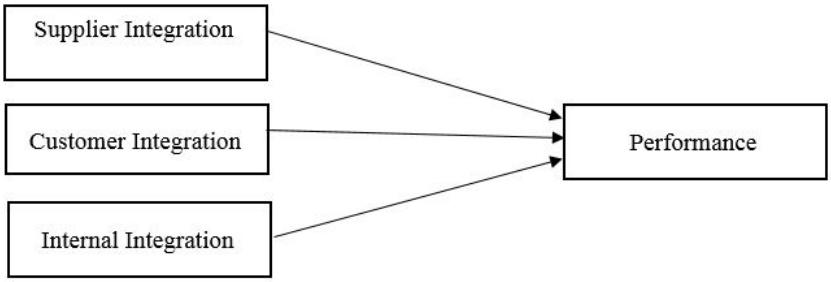

Figure 1. Conceptual model of research

3. Methods

The present study is applied regarding the purpose of the research, because the findings related to the impact of supply chain integration on the performance of the project-based organization, can be used by managers and project-based companies. On the other hand, considering that the present study examines the current situation and analyzes the relationship between research variables, it is a descriptive-survey type.

To examine and describe the demographic variables of the respondents (descriptive statistics), the frequency and relative frequency percentages are used. In inferential statistics, univariate and bivariate tests using SPSS software are used. To test the research hypotheses, structural equation modeling using Smart PLS software is used.

In measuring the supply chain integration, there are different views. Some focus on the flow of materials and some others focus on the financial or information flow. Also, these flows can be measured in these three aspects: the integration with the customers, the integration with the suppliers, and the internal integration of the organization; our criterion is this categorization. Considering these cases and regarding that the questions about the project-based organizations do not exist, we consider the fulfilled studies of Flynn et al. (2010). As the base of our research (Narasimhan & Kim, 2002).

The questionnaire consists of two parts. The first part contains the respondent's demographic information, such as work background, work experience, etc. The second part is the questions related to research variables. The second part includes 17 questions on a 5-point scale, with numbers 1 to 5 each representing "total disagreement", "disagreement", "no opinion", "agreement", and "total agreement", respectively (Krosnick & Fabrigar, 1997).

In the second part of the questionnaire, the questions about the performance of the organization are proposed. The questions relating to the evaluation of the function of the organization are designed in the 5-level Lickert form from the "total disagreement" to "total agreement" (Krosnick & Presser, 2010).
To measure the CVR index, the views of 14 specialists were gathered. In all cases, the CVR index was greater than 0.62. Also. The CVI index was greater than 0.79 for all cases. So, both indexes relating to the validity of the questionnaire were at a desirable level.
To measure the reliability of the questionnaire, Cronbach's alpha was used. In the beginning, the questionnaire was delivered to 40 members of the population, and next, the Cronbach's Alpha was measured using IBM SPSS. The results showed that Cronbach's Alpha was acceptable for all the variables (all were greater than 0.7) (Cronbach, 1951). Besides, the same method was repeated after the distribution of the questionnaire among the research sample. According to table 4, Cronbach's Alpha was acceptable for all the variables.

4. Data Collection

1000 questionnaires were distributed among the project-based organizations. The questionnaires were sent to the organizations via email or fax and in a companying letter, it is asked the questionnaires should be filled by top managers or procurement related managers. 227 questionnaires were returned, and after the preliminary investigation, it was found that 16 questionnaires had some problems and were not analyzable. In the end, 211 questionnaires were used in this research. Of these, 133 (%63.03) companies operate in the field of construction and 78 (%36.96) companies in the field of energy, oil, and gas.

5. Results and Discussion

5.1 Numerical Results

5.1.1 Univariate Analysis

The variable descriptive indexes were studied by IBM SPSS to investigate the state of variables and the society's perception level about them. The obtained value of the mean, standard deviation, skewness, and kurtosis are presented in table 1. In general, if the skewness and Kurtosis are in the range (+2, -2), the data distribution will be normal. According to the data in Table 1, the data distribution of this research is normal.

Table 1. Descriptive indicators of variables

	Mean	Standard Deviation	Skewness	Kurtosis
Supplier Integration	2.2356	0.78157	0.865	1.682
Customer Integration	2.1903	0.66536	0.555	1.615
Internal Integration	2.4393	0.84009	0.645	0.778
Performance	2.9086	0.74349	0.186	-0.081

5.1.2 Correlation of variables

The correlation coefficient is the measurement of the intensity and orientation of the linear relation between two variables. Since the used scale for the measurement of all variables is a sequential scale, the Spearman correlation coefficient was used to analyze the relationships between the variables. The obtained findings of IBM SPSS showed that there was a positive and meaningful relationship between the supplier integration and customer integration with the performance of the project-based organization. Besides, there is a similar relationship between the internal integration and the performance of the project-based organization. According to table 2, it becomes evident that three variables of the supplier integration, the customer integration, and the internal integration have a positive and meaningful correlation with the performance in the significance level of 0.01.

Table 2. Correlation of variables

Constructs	Supplier Integration	Customer Integration	Internal Integration
Performance	0.239	0.266	0.254
Sig.(2-tailed)	0	0	0
Correlation is significant at the 0.01 (2-tailed)			

To investigate the validity of the structure's convergence, the average variance extracted (AVE) was used. As can be seen in table 3, this criterion is in an acceptable level for all variables (the acceptable values are equal to or greater than 0.5). According to the results in Table 3, the Cronbach's alpha coefficient for each of the variables is greater than 0.7. Therefore, the reliability of the questionnaire is confirmed. Also, to investigate the discriminant validity, the Fornell-Larcker (Fornell & Larcker, 1981) criterion was used. The results of this assessment are shown in table 4 and accordingly the discriminant validity of the model is confirmed. According to this criterion, the second root of all structures must be higher than the correlation of these structures with other latent variables in the path model. Therefore, the validity of the model is confirmed.

Table 3. Average Variance Extracted & Cronbach-Alpha results

Constructs	Supplier Integration	Customer Integration	Internal Integration	Performance
AVE	0.649	0.519	0.646	0.55
Cronbach-Alpha	0.818	0.702	0.822	0.797

Table 4. Fornell-Larcker criteria results

Constructs	Supplier Integration	Customer Integration	Internal Integration	Performance
Supplier Integration	0.805			
Customer Integration	0.718	0.72		
Internal Integration	0.549	0.553	0.803	
Performance	0.344	0.274	0.294	0.741

In the following, the items of the model will be assessed by the transverse loads' test. As can be seen in Table 5, the items of the model should have the value of the load which is on its corresponding variable. It was such that the other transverse loads are significantly low. As shown in Table 5, the model items have the highest load on their respective variables, while the other transverse loads are significantly lower.

Table 5. Transverse load test results

	Customer Integration	Internal Integration	Performance	Supplier Integration
c1	0.483	0.444	0.261	0.746
c2	0.545	0.359	0.299	0.854
c3	0.594	0.511	0.302	0.867
c4	0.751	0.399	0.258	0.461
c5	0.650	0.433	0.109	0.533
c6	0.770	0.307	0.223	0.488
c7	0.643	0.493	0.282	0.749
c8	0.704	0.486	0.212	0.596
c9	0.429	0.808	0.279	0.476
c10	0.427	0.783	0.200	0.436
c11	0.435	0.802	0.182	0.392

c12	0.469	0.822	0.319	0.473
f1	0.276	0.243	0.794	0.315
f2	0.212	0.231	0.768	0.244
f3	0.237	0.187	0.775	0.270
f4	0.145	0.196	0.668	0.159
f5	0.202	0.305	0.696	0.291

In the end, we use a criterion named GOF for investigating the overall model fitness. Three values of 0.01, 0.25, and 0.36 were introduced as the weak, medium, and strong values for the GOF (Wetzels et al., 2009). This criterion is calculated by the following formula:

$$GOF = \sqrt{\overline{communalities} * \overline{R^2}}$$

After the calculation, the GOF value of our model is 0.46 which is on the acceptable level (0.46>0.36).

In order to test the hypotheses of the research, the modeling of the structural equations was done using Smart PLS. Smart PLS is based on the variance, and its difference with the other attitudes is its numerous calculations and higher statistical effectiveness. Besides, Smart PLS has high effectiveness and compatibility in confrontation with the statistical problems and issues.

Table 6. Direct effect values and results

Hypothesis	Result	Standardized regression weights	p-value
Supplier Integration-->Performance	Supported	0.235	0.016
Customer Integration-->Performance	Rejected	0.038	0.639
Internal Integration-->Performance	Supported	0.167	0.03

First hypothesis: This hypothesis implies that supplier integration improves the performance of project-based organizations. The results show that the route coefficient between the variables is 0.235 and the value of t is more than the critical value (1.96<2.408). So, the null hypothesis (not-affecting the performance of the organization by the supplier integration) is rejected in significance level of 0.05 and the first hypothesis of this study is confirmed with 95% degree of certainty.
Second hypothesis: This hypothesis implies that customer integration improves the performance of project-based organizations. The results show that the route coefficient between the variables is 0.038 and the value of t is lower than the critical value (1.96>0.470). So, the null hypothesis (not-affecting the performance of the organization by the customer integration) is confirmed in significance level of 0.05 and the second hypothesis of this study is rejected with 95% degree of certainty.
Third hypothesis: This hypothesis implies that the internal integration of the organization improves the performance of project-based organizations. The results show that the route coefficient between the variables is 0.167 and the value of t is greater than the critical value (1.96>2.180). So, the null hypothesis (not-affecting the performance of the organization by the internal integration of the organization) is rejected in significance level of 0.05 and the third hypothesis of this study is confirmed with 95% degree of certainty.

5.2 Graphical Results

As shown in Figure 2, according to the structural model of the research, the relationships between latent variables (dependent, independent, etc.) indicate that there is a favorable correlation between the variables. Also ,P values indicate the degree of impact supplier integration, customer integration, and internal integration on the performance of the organization. According to the explanations of the previous sections, the structural model of the present study is valid in terms of reliability and validity.

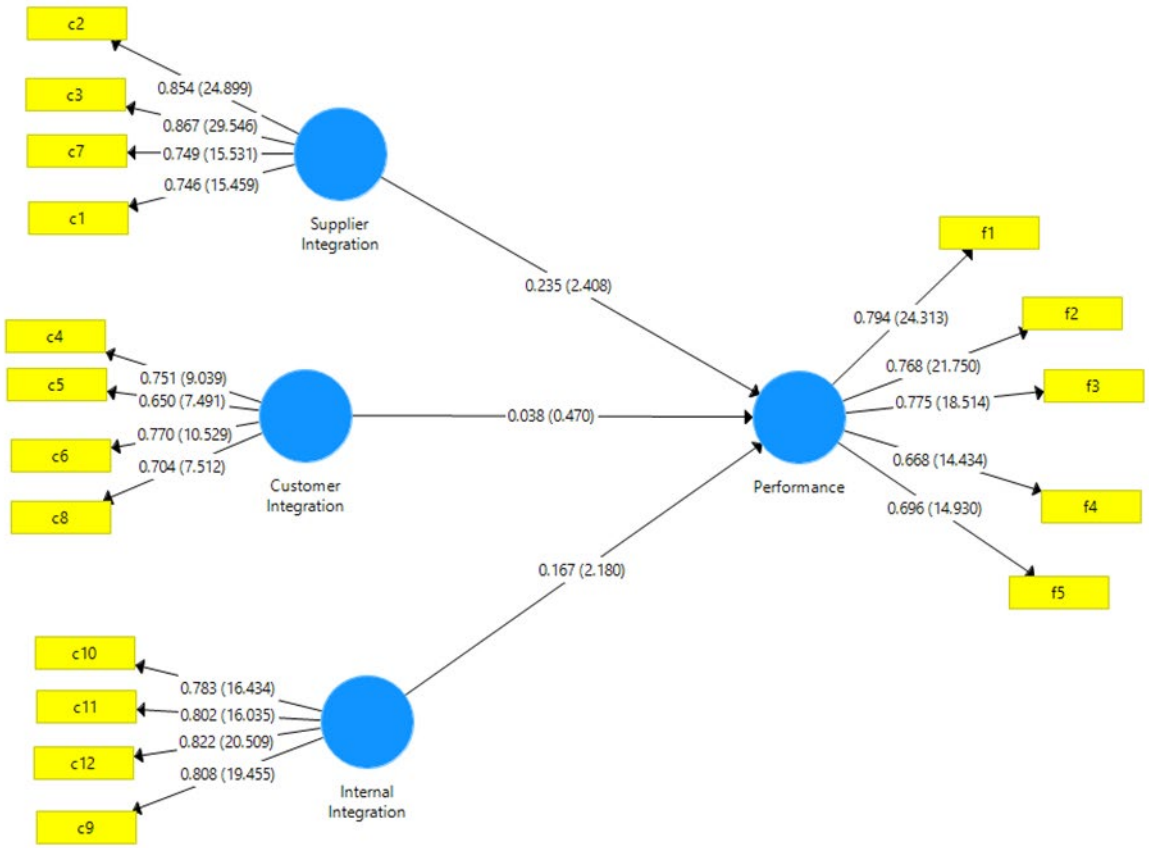

Figure 2. Structural model result

5.3 Proposed Improvements

One of the limitations of this research was the thematic literature in the field of project-based organizations. In general, the fulfilled researches about these organizations are so limited. Many respondents to the questionnaires are organizations active in the field of construction and road construction.

The magnitude of the organizations was not considered in gathering and analyzing the data.

The factors like cautious actions of the managers and their not cooperating because of some organizational rules and concerns about the disclosure of information can affect the results of the research.

It is suggested to pay attention to the magnitude of the organizations in future studies and assess the proposed relationships in different organizational groups with different magnitude. It is also suggested to fulfill the same researches in the other project-based organizations like the organizations of the oil and gas industry.

5.4 Validation

The findings of this research showed that most project-based organizations are informed of the importance of the supply chain integration (suppliers, customers, and internal), and there are a small number of organizations that have not tried to apply the supply chain integration to reach their organizational goals.

According to the findings of this research, supplier integration has a positive effect on the performance of project-based organizations and has a great role in the success of the organization. This result is compatible with the previous studies (Flynn et al., 2010; Huo, 2012; Prajogo & Olhager, 2012; Ataseven & Nair, 2017; Kumar et al., 2017; Qi et al., 2017; Lu et al., 2017; Fernandez & Jiménez, 2017; Zhang et al., 2018; Khan & Wisner, 2019) that have shown the positive effect of the supplier integration. So, this positive relationship exists in project-based organizations, too.

According to many experts, the existence of complicated products and systems is one of the main factors for the development of working groups and subsequently the project-based organizations (Davies & Hobday, 2005). In these organizations, the manner of the relationship and communication with the customers and the presentation of the services and products are different from the other organizations, and the projects are the methods, which these organizations communicate with their customers (Turner et al., 2019). The results of this research showed that customer integration does not affect the performance of project-based organizations. This finding is contrary to the previous studies in this field (Flynn et al., 2010; Huo, 2012; Prajogo & Olhager, 2012; Ataseven & Nair, 2017; Kumar et al., 2017; Qi et al., 2017; Lu et al., 2017; Tarifa-Fernandez & De Burgos-Jiménez, 2017; Khan & Wisner, 2019) that have emphasized a positive effect of the customer integration on the performance of the organization.

The results show that internal integration has a positive and meaningful relationship with the performance of the organization in the project-based one. This finding is confirmed in the previous studies (Flynn et al., 2010; Huo, 2012; Qi et al., 2017), too.

This research firstly divides the supply chain integration into three groups. Then, it investigates the linear relationship between these three integrations of the supply chain with the performance of the project-based organizations using the method of the structural equation. In addition, it enriches the progressing subject of SCI and PBO by sharing the experimental findings of the construction industry in Iran.

6. Conclusion

The results of this research show that the supplier integration and the internal integration of the organization have a positive effect on the performance of the project-based organization and there is a strong correlation between them. So, it is suggested to the managers of these organizations to pay special attention to the supplier integration and the internal integration to be successful and improve the performance. Unlike other organizations, customer integration does not have any effect on the performance of a project-based organization.

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