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The Effect of Supply Chain Management Practices on Perceived Organizational Performance Applied Study in Oil and Gas Industries in Egypt

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Abstract
This research focuses on to identify the relationship between supply chain management practices (supplier relationship management, supply chain complexity, information sharing, information quality, logistics and strategic location) with perceived organization performance through the mediating role of supply chain performance (supply chain integration, supply chain flexibility and supplier performance) in oil and gas industries in Egypt. Then the relationship between the three variables will be tested and examined. Literature and prior studies related to this field are reviewed to construct the research hypotheses, which state that there is a significant relationship between Supply Chain Management Practices and Supply Chain Performance, there is a significant relationship between Supply Chain Performance and Perceived Organizational Performance, and there is a significant relationship between Supply Chain Management Practices and Perceived Organizational Performance. These hypotheses will be tested throughout the research study. Primary data is collected from supply chain employees in 61 companies of the petroleum agency in Egypt using a quantitative approach (Questionnaire). The data collected is analyzed and then the results of the analysis and findings are demonstrated by the end of the research with some recommendations to Egyptian SMEs to enhance their Perceived Organizational Performance.

Keywords: *Supply Chain Management Practices, Supply Chain Performance, Perceived Organizational Performance.*

1. Introduction

The business market nowadays becomes more dynamic, global, and customer driven. Corporates always works on shortening of the product life and increase the variety of products; technological developments are occurring at a faster pace in order to fits customers need. Any corporate needs to have strong upstream and downstream integration of their business relationships elaborate network in order to be able to achieve a competitive advantage. Therefore, there is an imminent need for supply chain management practices in all sectors and across each value chain entities, as it is considered as one of the most effective way for corporates to improve their competitive advantage. In addition, it is considered widely as an effective management tool for the organizations to maintain its stability and prosperity. Supply Chain Management Practices includes a group of practices to effectively integrate suppliers, manufacturers, distributors, and customers for improving the long-term performance of the individual organization and the whole supply chain (Gorane and Kant, 2017).

This research aims to identify the relationship between supply chain management practices (supplier relationship, supply chain complexity, information sharing, information quality, logistics and strategic location) with perceived organization performance through the mediating role of supply chain performance (supply chain integration, supply chain flexibility and supplier performance) in oil and gas industries in Egypt.

2. Literature Review

In this section, the hypotheses of the current research are developed, the first hypothesis is the relationship between Supply Chain Management Practices and Supply Chain Performance as followings; Saudi et al. (2019) aimed to investigate the relationship between Supply Chain Management Practices and supply chain performance in Malaysian electronic industries. The results indicated that there was a significant relationship between supply chain management practices and supply chain performance. In addition, Phan et al. (2020) examined the effect of supply chain management practices represented in information sharing, information quality, supplier relationship and customer relationship on supply chain integration. Findings proved a significant relationship between Supply Chain Management Practices and supply chain integration. Moreover, a mediating role of supply chain integration was proved in the relationship between supply chain management practices and supply chain performance. Moreover, Wiedmer and Griffis (2021) investigated the relationship between supply chain complexity and firm level and supply chain performance level. The results found that the supply chain complexity played a significant role on supply chain performance.

The second hypothesis, relationship between supply chain performance and perceived organization performance as following; Kumar et al. (2017) aimed to examine the effect of supply chain integration on organization performance. The results proved a positive significant effect of supply chain integration on performance. In addition, Delic et al. (2019) have made an empirical study to test the relationship between supply chain integration and performance of automotive industry in European Union. The findings assured of a positive significant effect of supply chain performance on the firm performance. On the other hand, it proved an indirect positive effect of supply chain integration on performance. Furthermore, Gawankar et al. (2017) clarified the effect of supply chain performance on enhancing organizational performance. The analysis concluded that there was a positive relationship between supply chain performance and organizational performance.

The third hypothesis is relationship between supply chain management practices and perceived organization performance as following; Vijayvargy et al. (2017) examined the relationship between supply chain management practices and organizational performance for Indian industry. The results found that supply chain management practices had equal improvement in organizational performance for both small-medium enterprises and large companies. Barber et al. (2017) examined investigated the relationship between supply chain management practices and organizational performance. The results indicated that supply chain management practices had positive direct influence on organizational performance. Feng et al. (2018) explained the impacts of between Supply Chain Management Practices on the financial performance of manufacturing automotive companies in China. The findings showed that there was a positive significant impact of between supply chain management practices on the financial performance of manufacturing automotive companies in China.

The fourth hypothesis is role of supply chain performance in the relationship between supply chain management practices and perceived organization performance as following; Kumar and Nambirajan (2013) indicated the role of supply chain performance in the relationship between Supply Chain Management Practices and organizational performance. The results reached that there was link of supply chain performance in the relationship between Supply Chain Management Practices and organizational

performance. Barber et al. (2017) examined investigated the role of supply chain performance in the relationship between supply chain management practices and organizational performance. The results indicated that supply chain performance had positive influence on Supply Chain Management Practices and supply chain management practices had positive direct influence on organizational performance.

3. Research Methodology

This study aims to identify the relationship between supply chain management practices (supplier relationship, supply chain complexity, information sharing, information quality, logistics and strategic location) with perceived organization performance through the mediating role of supply chain performance (supply chain integration, supply chain flexibility and supplier performance). To test this goal, the researcher used positivism philosophy and deductive approach because they are more compatible with the nature of the research. In addition, this research depends on collecting a quantitative data to measure the research variables by making a questionnaire. This questionnaire targeted a population of supply chain employees in 61 companies according to the official website of the petroleum agency in Egypt and a simple-random sampling technique is utilized. The sample of the study consisted of 600 questionnaires sent to supply chain employees in 61 companies according to the official website of the petroleum agency in Egypt. Only 460 questionnaires were turned back, after neglected the invalid answers and questionnaire with missing data the sample ended up with 385 questionnaires gathered from supply chain employees in 61 companies with response rate equal to 64.16%, where the sample is chosen to match 95% confidence level.

The variables used in this study can be categorized into the following:

Independent Variables: Supply Chain Management Practices with six dimensions (Supplier Relationship, Supply Chain Complexity, Information Sharing, Information quality, Logistics and Strategic Location).

Dependent Variables: Perceived Organization Performance

Mediator: Supply Chain Performance with three dimensions (Supply Chain Integration, Supply Chain Flexibility and Supplier Performance).

Figure 1, represents the proposed study model for this research, where the study aimed at the variables:

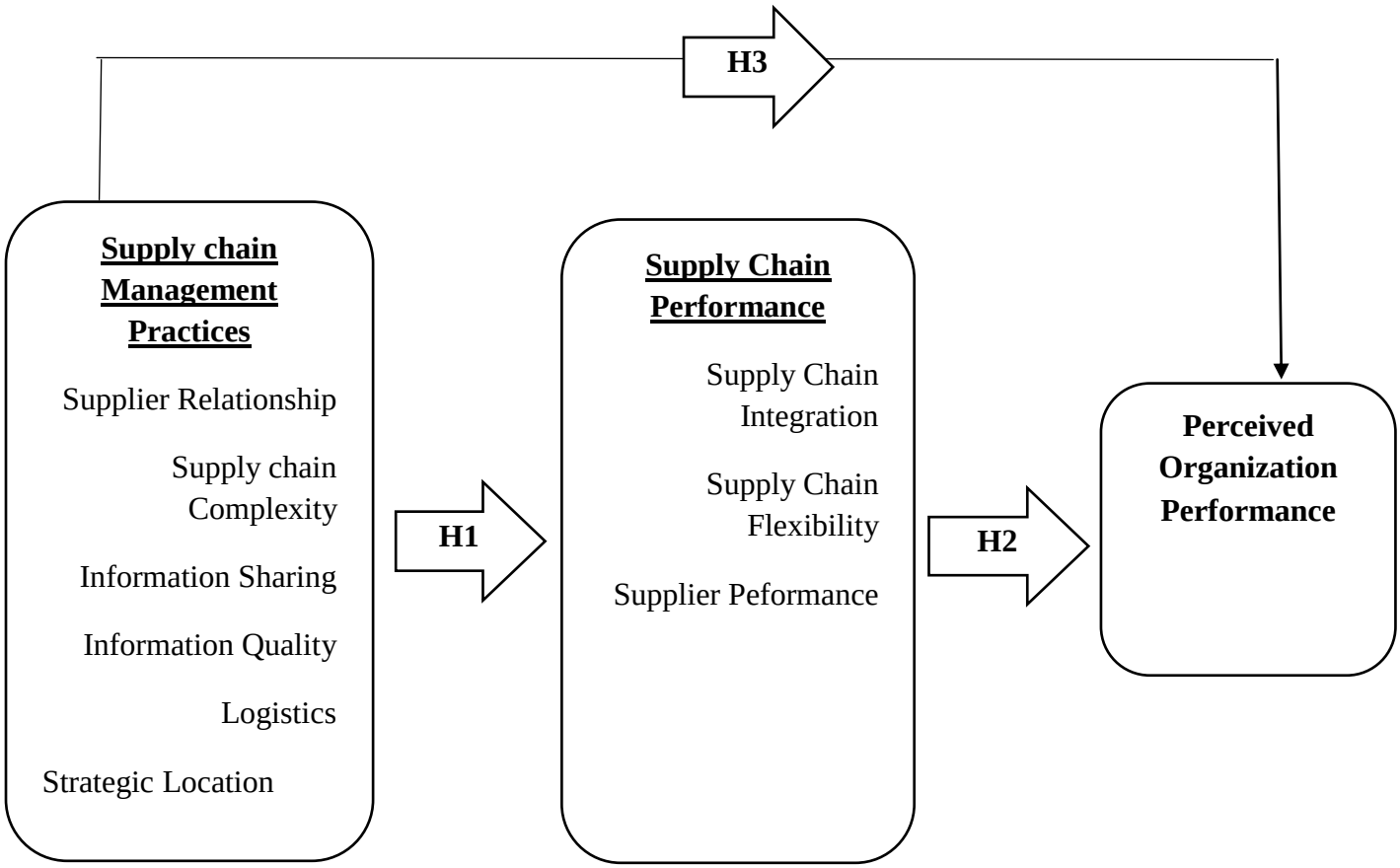

Figure 1: Research Framework

According to the above framework, the research hypotheses are developed as following:

H1: There is a significant relationship between Supply Chain Management Practices and Supply Chain Performance of Oil and Gas Industries.

$H_{1.1}$: There is a significant relationship between Supply Chain Management Practices and Supply Chain Integration of Oil and Gas Industries.

$H_{1.2}$: There is a significant relationship between Supply Chain Management Practices and Supply Chain Flexibility of Oil and Gas Industries.

$H_{1.3}$: There is a significant relationship between Supply Chain Management Practices and Supplier Performance of Oil and Gas Industries.

H2: There is a significant relationship between Supply Chain Performance and Perceived organization performance of Oil and Gas Industries.

H3: There is a significant relationship between Supply Chain Management Practices and Perceived organization performance of Oil and Gas Industries.

H4: Supply Chain Performance mediates the relationship between Supply Chain Management Practices and Perceived organization performance.

$H_{4.1}$: Supply Chain Integration mediates the relationship between Supply Chain Management Practices and Perceived organization performance of Oil and Gas Industries.
$H_{4.2}$: Supply Chain Flexibility mediates the relationship between Supply Chain Management Practices and Perceived organization performance of Oil and Gas Industries.
$H_{4.3}$: Supplier Performance mediates the relationship between Supply Chain Management Practices and Perceived organization performance of Oil and Gas Industries.

4. Results and Findings

This section will introduce the empirical study with the main findings and results after running the data analysis.

4.1 Descriptive Analysis

Table 1 shows the mean and standard deviation for the research variables. It could be observed that the mean and the frequencies of most responses are in the agreement zone, as the mean values for the research variables; Supplier Relationship Management, Supply Chain Complexity, Information Sharing, Information Quality, Logistics, Strategic Location, Supply Chain Integration, Supply Chain Flexibility, Supplier Performance, and Perceived Organizational Performance are 3.5870, 3.7896, 3.6494, 3.6000, 3.7013, 3.5117, 3.8545, 3.9455, 4.0104, and 3.9455 respectively.

Table 1: Descriptive Analysis for the Research Variables

Research Variable	N	Mean	Std. Deviation	Frequency				
				1	2	3	4	5
Supplier Relationship Management	385	3.5870	.71322	0	10	180	154	41
Supply Chain Complexity	385	3.7896	.78720	0	20	108	190	67
Information Sharing	385	3.6494	.75977	0	16	154	164	51
Information Quality	385	3.6000	.72601	0	10	179	151	45
Logistics	385	3.7013	.74065	0	10	150	170	55
Strategic Location	385	3.5117	.60423	0	5	195	168	17
Supply Chain Integration	385	3.8545	.55868	0	0	92	257	36
Supply Chain Flexibility	385	3.9455	.45602	0	0	51	304	30
Supplier Performance	385	4.0104	.56816	0	0	60	261	64
Perceived Organizational Performance	385	3.9455	.45027	0	0	50	306	29

4.2 Testing Research Hypotheses

4.2.1 Testing the First Hypothesis

Table 2 shows the SEM analysis for the impact of the Supply Chain Management Practices on Supply Chain Integration. It could be observed that:

- There is a significant impact of Supplier Relationship Management on Supply Chain Integration, as the corresponding P-value is less than 0.05 (P-value = 0.008).

- There is a significant impact of Supply Chain Complexity on Supply Chain Integration, as the corresponding P-value is less than 0.05 (P-value = 0.001).

- There is a significant impact of Information Sharing on Supply Chain Integration, as the corresponding P-value is less than 0.05 (P-value = 0.012).

- There is a significant impact of Information Quality on Supply Chain Integration, as the corresponding P-value is less than 0.05 (P-value = 0.040).

- There is a significant impact of Logistics on Supply Chain Integration, as the corresponding P-value is less than 0.05 (P-value = 0.001).

- There is a significant impact of Strategic Location on Supply Chain Integration, as the corresponding P-value is less than 0.05 (P-value = 0.000). Furthermore, the R square is 0.746, which means 74.6% of the variation in the Supply Chain Integration can be explained by the model.

Table 2: SEM Analysis of Supply Chain Management Practices on Supply Chain Integration

			Estimate	P	R^2
Supply Chain Integration	<---	Supplier Relationship Management	.097	.008	.746
Supply Chain Integration	<---	Supply Chain Complexity	.100	.001	
Supply Chain Integration	<---	Information Sharing	.083	.012	
Supply Chain Integration	<---	Information Quality	.084	.040	
Supply Chain Integration	<---	Logistics	.091	.001	
Supply Chain Integration	<---	Strategic Location	.175	***	

The model fit indices; CMIN/DF = 1.619, GFI = 0.873, CFI = 0.958, AGFI= 0.854, and RMSEA = 0.040 are all within their acceptable levels. The SEM model conducted for the effect of the Supply Chain Management Practices on Supply Chain Integration is illustrated in Figure 2.

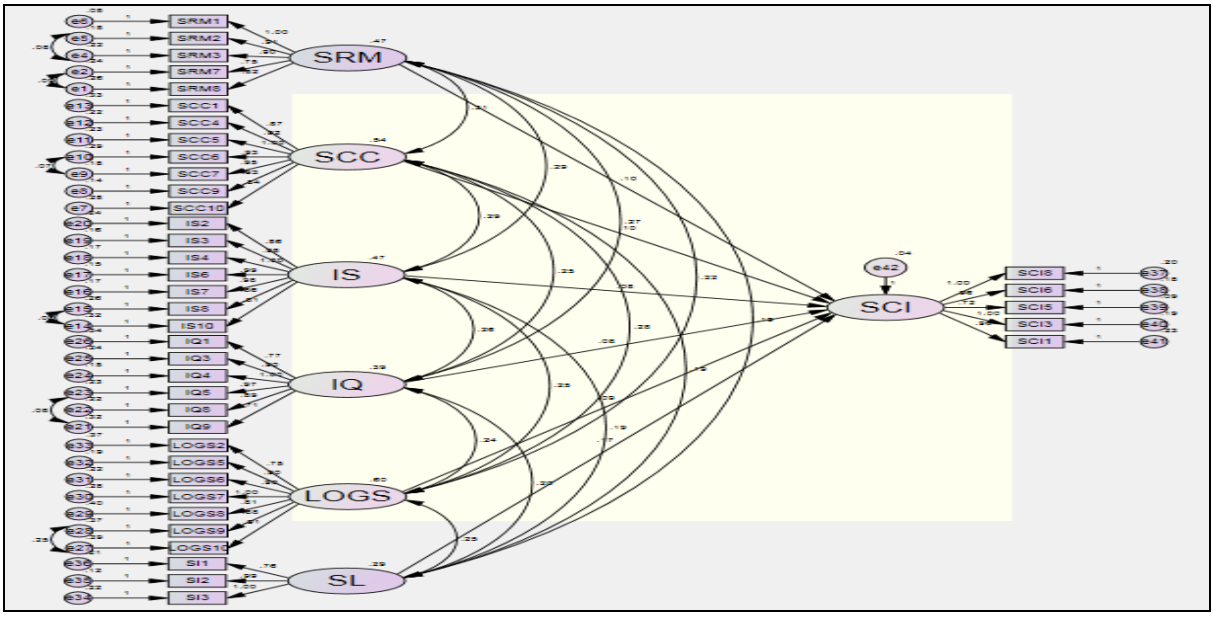

Figure 2: SEM for the effect of Supply Chain Management Practices on Supply Chain Integration

Therefore, the first sub hypothesis of the first hypothesis **"There is a significant positive effect of Supply Chain Management Practices on Supply Chain Integration" is fully supported.**

Table 3 shows the SEM analysis for the impact of the Supply Chain Management Practices on Supply Chain Flexibility. It could be observed that:

- There is an insignificant impact of Supplier Relationship Management on Supply Chain Flexibility, as the corresponding P-value is greater than 0.05 (P-value = 0.489).
- There is a significant impact of Supply Chain Complexity on Supply Chain Flexibility, as the corresponding P-value is less than 0.05 (P-value = 0.008).
- There is a significant impact of Information Sharing on Supply Chain Flexibility, as the corresponding P-value is less than 0.05 (P-value = 0.000).
- There is an insignificant impact of Information Quality on Supply Chain Flexibility, as the corresponding P-value is greater than 0.05 (P-value = 0.438).
- There is a significant impact of Logistics on Supply Chain Flexibility, as the corresponding P-value is less than 0.05 (P-value = 0.028)
- There is a significant impact of Strategic Location on Supply Chain Flexibility, as the corresponding P-value is less than 0.05 (P-value = 0.003). Furthermore, the R square is 0.466, which means 46.6% of the variation in the Supply Chain Flexibility can be explained by the model.

Table 3: SEM Analysis of Supply Chain Management Practices on Supply Chain Flexibility

			Estimate	P	R^2
Supply Chain Flexibility	<---	Supplier Relationship Management	.029	.489	.466
Supply Chain Flexibility	<---	Supply Chain Complexity	.096	.008	
Supply Chain Flexibility	<---	Information Sharing	.141	***	
Supply Chain Flexibility	<---	Information Quality	.037	.438	
Supply Chain Flexibility	<---	Logistics	.074	.028	
Supply Chain Flexibility	<---	Strategic Location	.169	.003	

The model fit indices; CMIN/DF = 1.668, GFI = 0.867, CFI = 0.956, AGFI= 0.847, and RMSEA = 0.042 are all within their acceptable levels. The SEM model conducted for the effect of the Supply Chain Management Practices on Supply Chain Flexibility is illustrated in Figure 3.

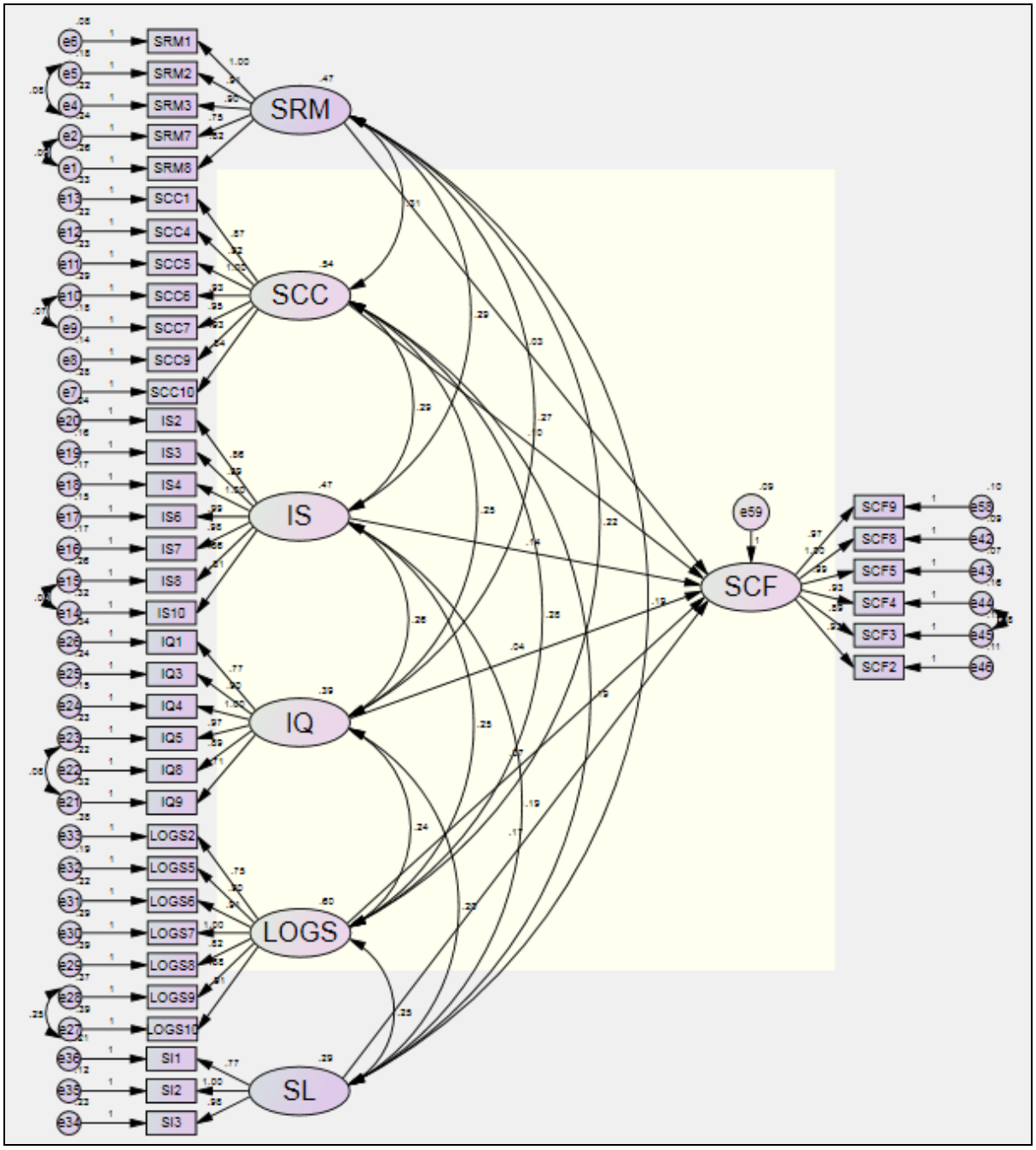

Figure 3: SEM for the effect of Supply Chain Management Practices on Supply Chain Flexibility

Therefore, the second sub hypothesis of the first hypothesis **"There is a significant positive effect of Supply Chain Management Practices on Supply Chain Flexibility"** is partially supported.

Table 4 shows the SEM analysis for the impact of the Supply Chain Management Practices on Supplier Performance. It could be observed that:

- There is an insignificant impact of Supplier Relationship Management on Supplier Performance, as the corresponding P-value is greater than 0.05 (P-value = 0.219).
- There is an insignificant impact of Supply Chain Complexity on Supplier Performance, as the corresponding P-value is greater than 0.05 (P-value = 0.289).
- There is a significant impact of Information Sharing on Supplier Performance, as the corresponding P-value is less than 0.05 (P-value = 0.012).

- There is a significant impact of Information Quality on Supplier Performance, as the corresponding P-value is less than 0.05 (P-value = 0.002).

- There is a significant impact of Logistics on Supplier Performance, as the corresponding P-value is less than 0.05 (P-value = 0.040).

- There is a significant impact of Strategic Location on Supplier Performance, as the corresponding P-value is less than 0.05 (P-value = 0.013). Furthermore, the R square is 0.496, which means 49.6% of the variation in the Supplier Performance can be explained by the model.

Table 4: SEM Analysis of Supply Chain Management Practices on Supplier Performance

			Estimate	P	R^2
Supplier Performance	<---	Supplier Relationship Management	.058	.219	.496
Supplier Performance	<---	Supply Chain Complexity	.042	.289	
Supplier Performance	<---	Information Sharing	.110	.012	
Supplier Performance	<---	Information Quality	.164	.002	
Supplier Performance	<---	Logistics	.076	.040	
Supplier Performance	<---	Strategic Location	.154	.013	

The model fit indices; CMIN/DF = 1.737, GFI = 0.862, CFI = 0.951, AGFI= 0.842, and RMSEA = 0.044 are all within their acceptable levels. The SEM model conducted for the effect of the Supply Chain Management Practices on Supplier Performance is illustrated in Figure 4.

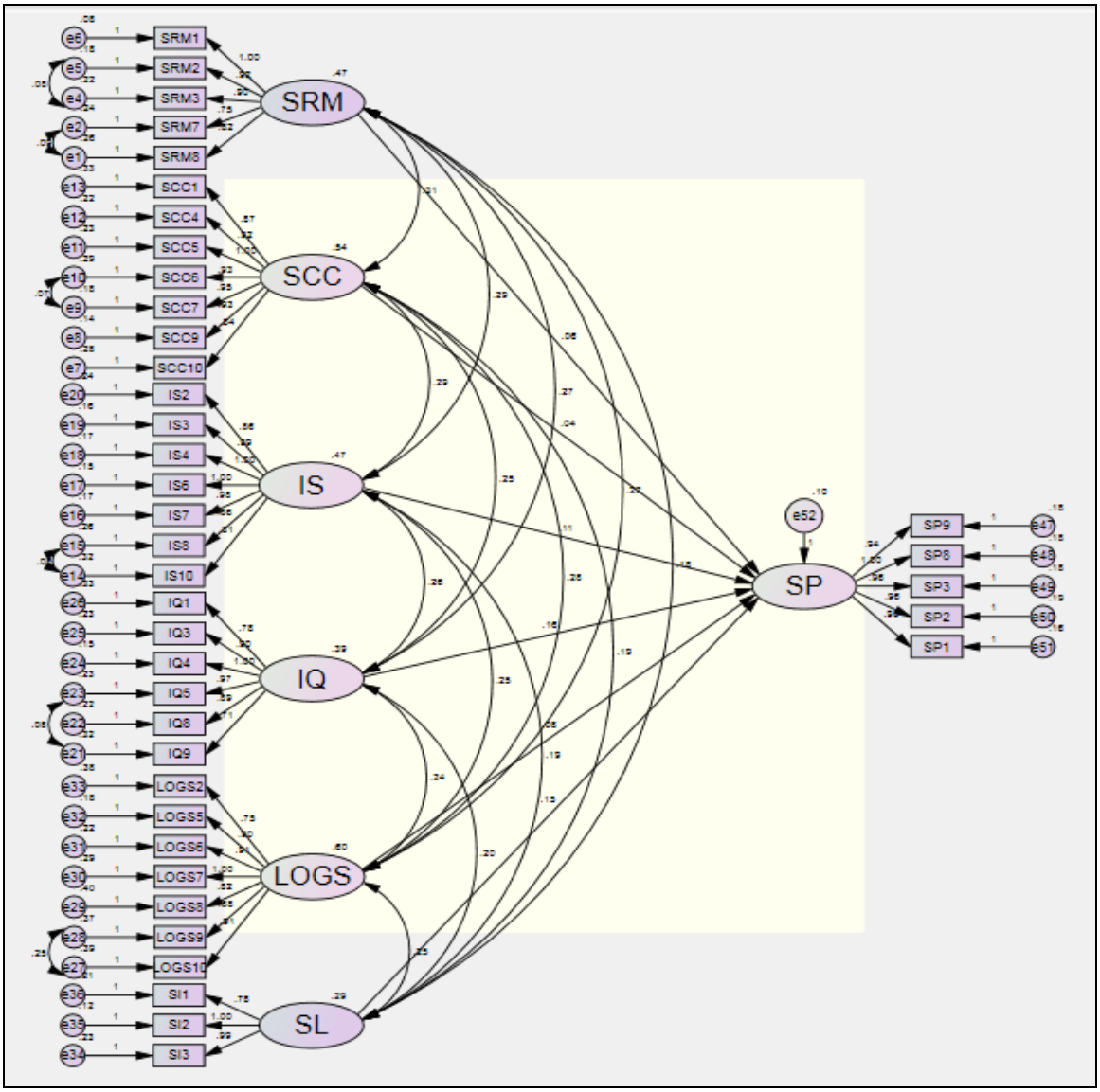

Figure 4: SEM for the effect of Supply Chain Management Practices on Supplier Performance

Therefore, the third sub hypothesis of the first hypothesis **"There is a significant positive effect of Supply Chain Management Practices on Supplier Performance" is partially supported.** Based on the previous study the first hypothesis **"There is a significant relationship between Supply Chain Management Practices and Supply Chain Performance of Oil and Gas Industries"** is partially supported.

4.2.2 Testing the Second Hypothesis

Table 5 shows the SEM analysis for the impact of the Supply Chain Performance and Perceived Organizational Performance. It could be observed that:

- There is a significant impact of Supply Chain Integration on Perceived Organizational Performance, as the corresponding P-value is less than 0.05 (P-value = 0.000).

- There is a significant impact of Supply Chain Flexibility on Perceived Organizational Performance, as the corresponding P-value is less than 0.05 (P-value = 0.000).

- There is a significant impact of Supplier Performance on Perceived Organizational Performance, as the corresponding P-value is less than 0.05 (P-value = 0.000). Furthermore, the R square is 0.541, which means 54.1% of the variation in the Perceived Organizational Performance can be explained by the model.

Table 5: SEM Analysis of Supply Chain Performance and Perceived Organizational Performance

			Estimate	P	R^2
Perceived Organizational Performance	<---	Supply Chain Integration	.436	***	.541
Perceived Organizational Performance	<---	Supply Chain Flexibility	.323	***	
Perceived Organizational Performance	<---	Supplier Performance	.209	***	

The model fit indices; CMIN/DF = 1.970, GFI = 0.911, CFI = 0.961, AGFI= 0.889, and RMSEA = 0.050 are all within their acceptable levels. The SEM model conducted for the effect of the Supply Chain Performance and Perceived Organizational Performance is illustrated in Figure 5.

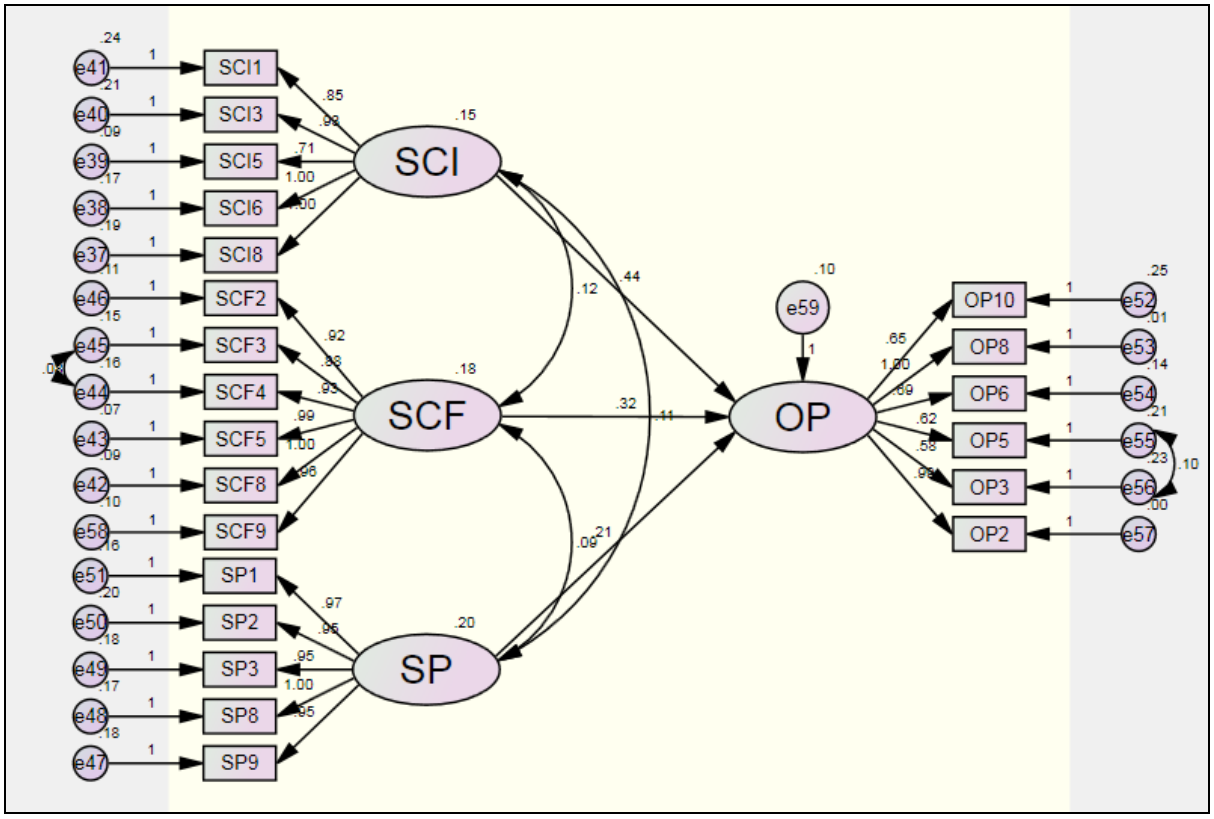

Figure 5: SEM for the effect of Supply Chain Performance and Perceived Organizational Performance

Therefore, the second hypothesis **"There is a significant relationship between Supply Chain Performance and Perceived Organizational Performance of Oil and Gas Industries"** is fully supported.

4.2.3 Testing the Third Hypothesis

Table 6 shows the SEM analysis for the impact of the Supply Chain Management Practices on Perceived Organizational Performance. It could be observed that:

- There is an insignificant impact of Supplier Relationship Management on Perceived Organizational Performance, as the corresponding P-value is greater than 0.05 (P-value = 0.644).
- There is a significant impact of Supply Chain Complexity on Perceived Organizational Performance, as the corresponding P-value is less than 0.05 (P-value = 0.000).

- There is an insignificant impact of Information Sharing on Perceived Organizational Performance, as the corresponding P-value is greater than 0.05 (P-value = 0.073).

- There is a significant impact of Information Quality on Perceived Organizational Performance, as the corresponding P-value is less than 0.05 (P-value = 0.011)

- There is a significant impact of Logistics on Perceived Organizational Performance, as the corresponding P-value is less than 0.05 (P-value = 0.009)

- There is an insignificant impact of Strategic Location on Perceived Organizational Performance, as the corresponding P-value is greater than 0.05 (P-value = 0.080). Furthermore, the R square is 0.453, which means 45.3% of the variation in the Perceived Organizational Performance can be explained by the model.

Table 6: SEM Analysis of Supply Chain Management Practices on Perceived Organizational Performance

			Estimate	P	R^2
Perceived Organizational Performance	<---	Supplier Relationship Management	.021	.644	.453
Perceived Organizational Performance	<---	Supply Chain Complexity	.187	***	
Perceived Organizational Performance	<---	Information Sharing	.074	.073	
Perceived Organizational Performance	<---	Information Quality	.129	.011	
Perceived Organizational Performance	<---	Logistics	.092	.009	
Perceived Organizational Performance	<---	Strategic Location	.080	.177	

The model fit indices; CMIN/DF = 1.716, GFI = 0.860, CFI = 0.955, AGFI= 0.840, and RMSEA = 0.043 are all within their acceptable levels. The SEM model conducted for the effect of the Supply Chain Management Practices on Perceived Organizational Performance is illustrated in Figure 6.

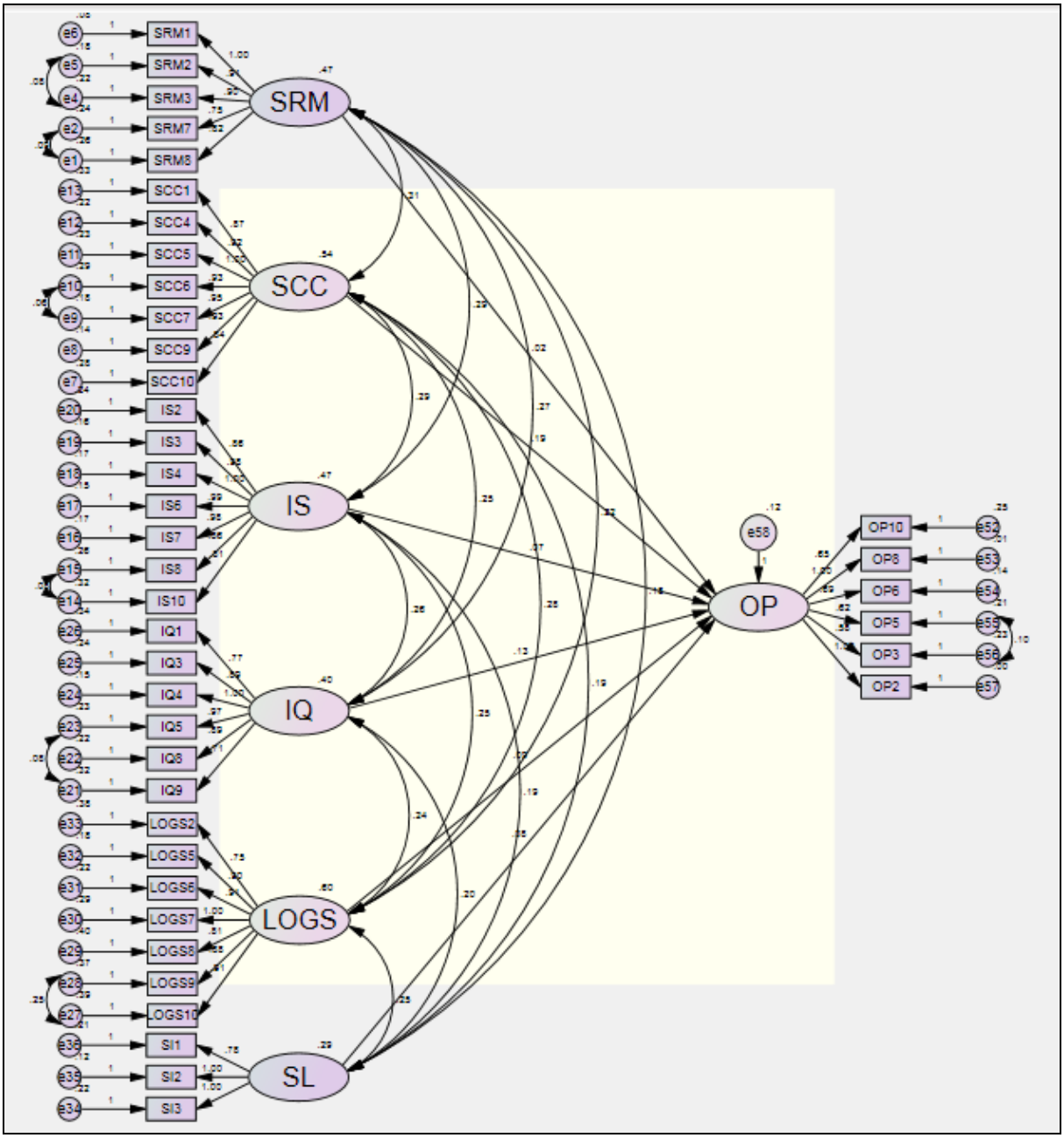

Figure 6: SEM for the effect of Supply Chain Management Practices on Perceived Organizational Performance

Therefore, the third hypothesis **"There is a significant relationship between Supply Chain Management Practices and Perceived Organizational Performance of Oil and Gas Industries"** is partially supported.

4.2.4 Testing the Fourth Hypothesis

Table 7 shows the SEM analysis of the mediation role of Supply Chain Integration between Supply Chain Management Practices and Perceived Organizational Performance. It could be observed that:

- From Table 7, there was an insignificant impact of Supplier Relationship Management on Organizational Performance, as the corresponding P-value is greater than 0.05 (P-value = 0.644). Therefore, Supply Chain Integration could not be considered as a mediator, as the relationship between Supplier Relationship Management and Organizational Performance had not been found.

- From Table 7, there was a significant impact of Supply Chain Complexity on Organizational Performance, as the corresponding P-value is less than 0.05 (P-value = 0.000). In addition, Table 4-

18 shows that there is a significant impact of Supply Chain Integration on Organizational Performance, as the corresponding P-value is less than 0.05 (P-value = 0.000). Moreover, Table 7 shows that the impact of Supply Chain Complexity on Organizational Performance is still significant in the presence of Supply Chain Integration, as the corresponding P-value is less than 0.05 (P-value = 0.002). Therefore, it could be claimed that Supply Chain Integration plays a partial mediation role between Supply Chain Complexity and Organizational Performance.

- From Table 7, there was an insignificant impact of Information Sharing on Organizational Performance, as the corresponding P-value is greater than 0.05 (P-value = 0.073). Therefore, Supply Chain Integration could not be considered as a mediator, as the relationship between Information Sharing and Organizational Performance had not been found.

- From Table 7, there was a significant impact of Information Quality on Organizational Performance, as the corresponding P-value is less than 0.05 (P-value = 0.000). In addition, Table 7 shows that there is a significant impact of Supply Chain Integration on Organizational Performance, as the corresponding P-value is less than 0.05 (P-value = 0.011). Moreover, Table 7 shows that the impact of Information Quality on Organizational Performance turned to be insignificant in the presence of Supply Chain Integration, as the corresponding P-value is more than 0.05 (P-value = 0.141). Therefore, it could be claimed that Supply Chain Integration plays a fully mediation role between Information Quality and Organizational Performance.

- From Table 7, there was a significant impact of Logistics on Organizational Performance, as the corresponding P-value is less than 0.05 (P-value = 0.009). In addition, Table 7 shows that there is a significant impact of Supply Chain Integration on Organizational Performance, as the corresponding P-value is less than 0.05 (P-value = 0.000). Moreover, Table 7 shows that the impact of Logistics on Organizational Performance turned to be insignificant in the presence of Supply Chain Integration, as the corresponding P-value is more than 0.05 (P-value = 0.337). Therefore, it could be claimed that Supply Chain Integration plays a fully mediation role between Logistics and Organizational Performance.

- From Table 7, there was an insignificant impact of Strategic Location on Organizational Performance, as the corresponding P-value is greater than 0.05 (P-value = 0.177). Therefore, Supply Chain Integration could not be considered as a mediator, as the relationship between Strategic Location and Organizational Performance had not been found.

Table 7: SEM Analysis for the mediation role of Supply Chain Integration between Supply Chain Management Practices and Perceived Organizational Performance

			Estimate	P	R^2
Supply Chain Integration	<---	Supplier Relationship Management	.096	.008	.745
Supply Chain Integration	<---	Supply Chain Complexity	.099	.001	
Supply Chain Integration	<---	Information Sharing	.083	.012	
Supply Chain Integration	<---	Information Quality	.084	.038	
Supply Chain Integration	<---	Logistics	.091	.002	
Supply Chain Integration	<---	Strategic Location	.176	***	
Perceived Organizational Performance	<---	Supplier Relationship Management	-.039	.408	.516

			Estimate	P	R^2
Perceived Organizational Performance	<---	Supply Chain Complexity	.125	.002	
Perceived Organizational Performance	<---	Information Sharing	.022	.606	
Perceived Organizational Performance	<---	Information Quality	.076	.141	
Perceived Organizational Performance	<---	Logistics	.036	.337	
Perceived Organizational Performance	<---	Strategic Location	-.030	.645	
Perceived Organizational Performance	<---	Supply Chain Integration	.626	***	

The model fit indices; CMIN/DF = 1.608, GFI = 0.855, CFI = 0.955, AGFI= 0.836, and RMSEA = 0.040 are all within their acceptable levels. The SEM model conducted for the mediation role of Supply Chain Integration between Supply Chain Management Practices and Perceived Organizational Performance is illustrated in Figure 7.

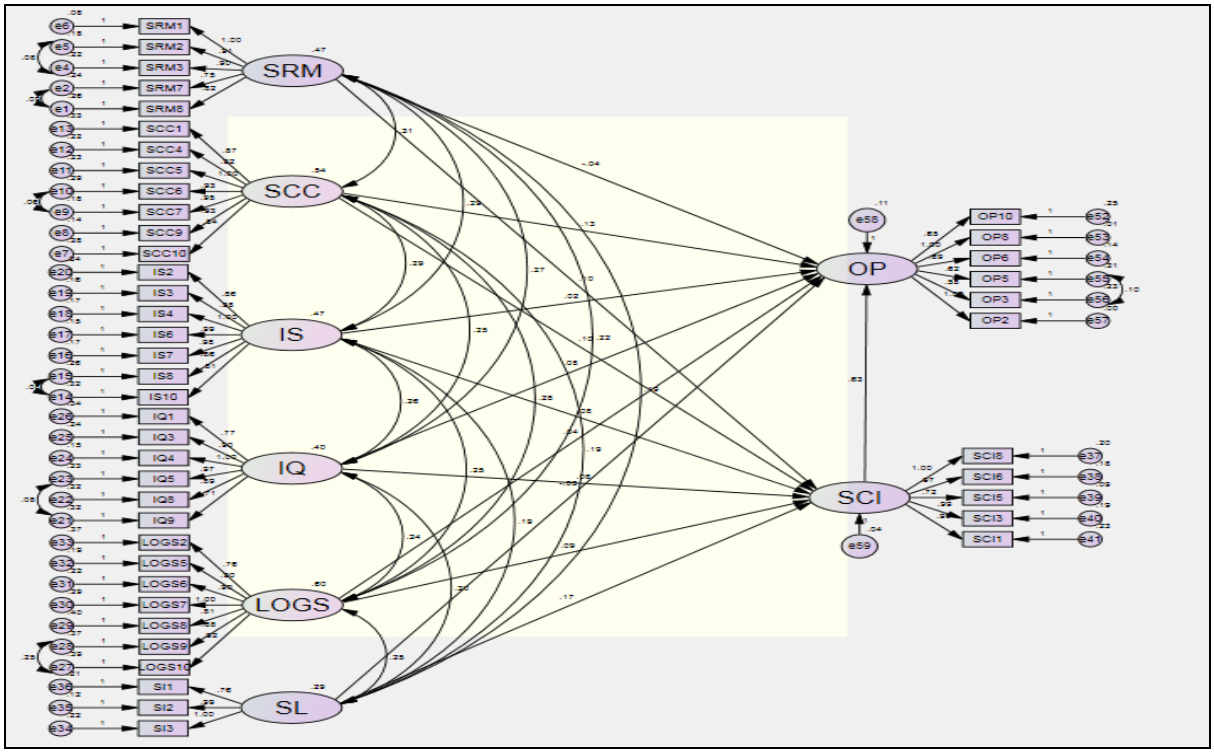

Figure 7: SEM for mediation role of Supply Chain Integration between Supply Chain Management Practices and Perceived Organizational Performance

Therefore, the first sub hypothesis of the fourth hypothesis **"Supply Chain Integration mediates the relationship between Supply Chain Management Practices and Perceived Organizational Performance"** is partially supported.

Table 8 shows the SEM analysis of the mediation role of Supply Chain Flexibility between Supply Chain Management Practices and Perceived Organizational Performance. It could be observed that:

- From Table 8, there was an insignificant impact of Supplier Relationship Management on Organizational Performance, as the corresponding P-value is greater than 0.05 (P-value = 0.644). Therefore, Supply Chain Flexibility could not be considered as a mediator, as the relationship between Supplier Relationship Management and Organizational Performance had not been found.

- From Table 8, there was a significant impact of Supply Chain Complexity on Organizational Performance, as the corresponding P-value is less than 0.05 (P-value = 0.000). In addition, Table 4-19 shows that there is a significant impact of Supply Chain Flexibility on Organizational Performance, as the corresponding P-value is less than 0.05 (P-value = 0.000). Moreover, Table 8 shows that the impact of Supply Chain Complexity on Organizational Performance is still significant in the presence of Supply Chain Flexibility, as the corresponding P-value is less than 0.05 (P-value = 0.000). Therefore, it could be claimed that Supply Chain Flexibility plays a partial mediation role between Supply Chain Complexity and Organizational Performance.

- From Table 8, there was an insignificant impact of Information Sharing on Organizational Performance, as the corresponding P-value is greater than 0.05 (P-value = 0.073). Therefore, Supply Chain Flexibility could not be considered as a mediator, as the relationship between Information Sharing and Organizational Performance had not been found.

- From Table 8, there was a significant impact of Information Quality on Organizational Performance, as the corresponding P-value is less than 0.05 (P-value = 0.000). In addition, Table 4-19 shows that there is a significant impact of Supply Chain Flexibility on Organizational Performance, as the corresponding P-value is less than 0.05 (P-value = 0.000). Moreover, Table 8 shows that the impact of Information Quality on Organizational Performance is still significant in the presence of Supply Chain Flexibility, as the corresponding P-value is less than 0.05 (P-value = 0.018). Therefore, it could be claimed that Supply Chain Flexibility plays a partially mediation role between Information Quality and Organizational Performance.

- From Table 8, there was a significant impact of Logistics on Organizational Performance, as the corresponding P-value is less than 0.05 (P-value = 0.009). In addition, Table 8 shows that there is a significant impact of Supply Chain Flexibility on Organizational Performance, as the corresponding P-value is less than 0.05 (P-value = 0.000). Moreover, Table 8 shows that the impact of Logistics on Organizational Performance turned to be insignificant in the presence of Supply Chain Flexibility, as the corresponding P-value is more than 0.05 (P-value = 0.068). Therefore, it could be claimed that Supply Chain Flexibility plays a fully mediation role between Logistics and Organizational Performance.

- From Table 8, there was an insignificant impact of Strategic Location on Organizational Performance, as the corresponding P-value is greater than 0.05 (P-value = 0.177). Therefore, Supply Chain Flexibility could not be considered as a mediator, as the relationship between Strategic Location and Organizational Performance had not been found.

Table 8: SEM Analysis for the mediation role of Supply Chain Flexibility between Supply Chain Management Practices and Perceived Organizational Performance

			Estimate	P	R^2
Supply Chain Flexibility	<---	Supplier Relationship Management	.029	.489	.466
Supply Chain Flexibility	<---	Supply Chain Complexity	.096	.008	

			Estimate	P	R^2
Supply Chain Flexibility	<---	Information Sharing	.141	***	
Supply Chain Flexibility	<---	Information Quality	.037	.436	
Supply Chain Flexibility	<---	Logistics	.074	.028	
Supply Chain Flexibility	<---	Strategic Location	.168	.003	
Perceived Organizational Performance	<---	Supplier Relationship Management	.008	.851	.532
Perceived Organizational Performance	<---	Supply Chain Complexity	.146	***	
Perceived Organizational Performance	<---	Information Sharing	.012	.757	
Perceived Organizational Performance	<---	Information Quality	.112	.018	
Perceived Organizational Performance	<---	Logistics	.061	.068	
Perceived Organizational Performance	<---	Strategic Location	.006	.912	

The model fit indices; CMIN/DF = 1.665, GFI = 0.848, CFI = 0.951, AGFI= 0.828, and RMSEA = 0.042 are all within their acceptable levels. The SEM model conducted for the mediation role of Supply Chain Flexibility between Supply Chain Management Practices and Perceived Organizational Performance is illustrated in Figure 8.

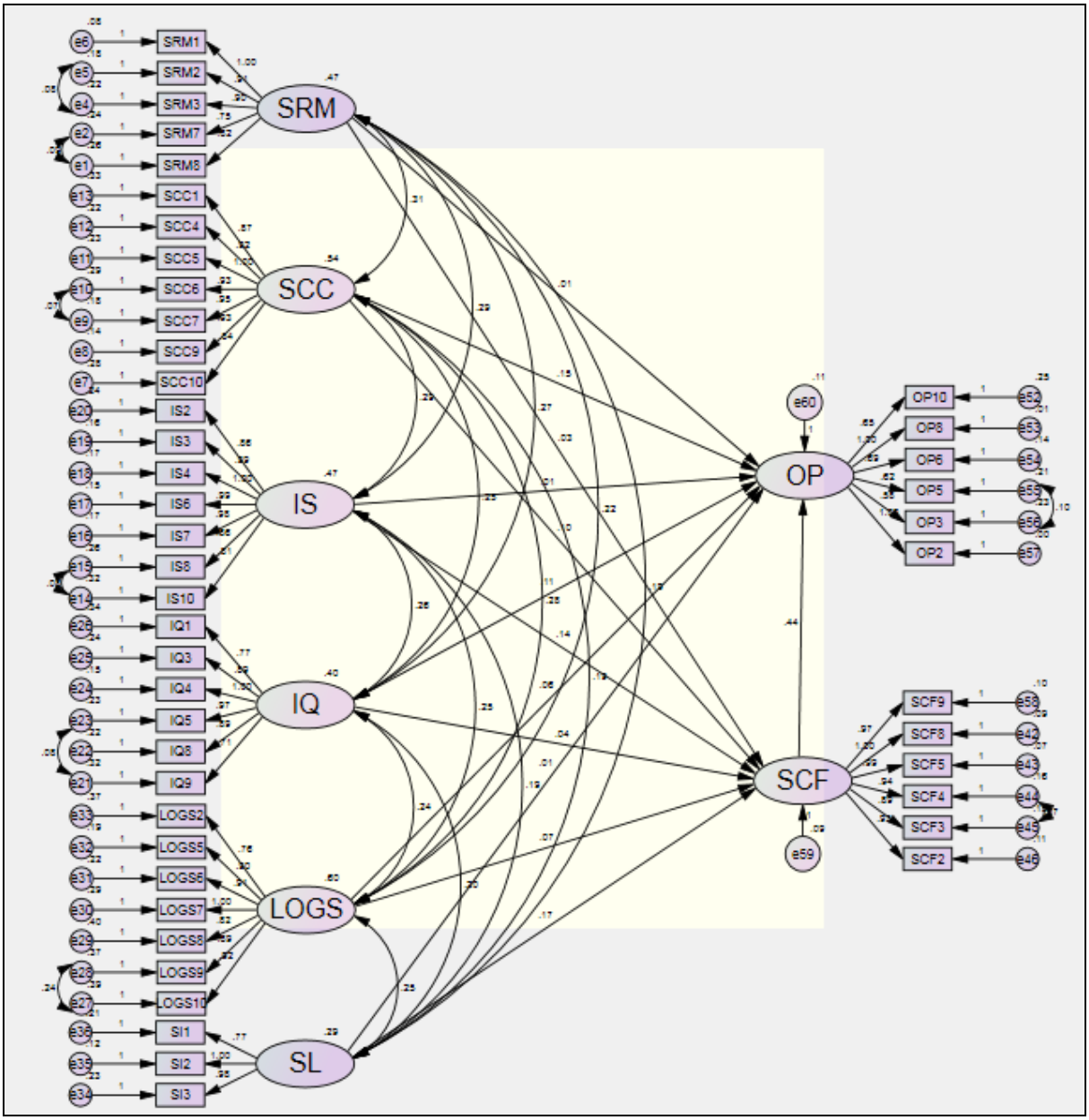

Figure 8: SEM for mediation role of Supply Chain Flexibility between Supply Chain Management Practices and Perceived Organizational Performance

Therefore, the second sub hypothesis of the fourth hypothesis **"Supply Chain Flexibility mediates the relationship between Supply Chain Management Practices and Perceived Organizational Performance"** is partially supported.

Table 9 shows the SEM analysis of the mediation role of Supplier Performance between Supply Chain Management Practices and Perceived Organizational Performance. It could be observed that:

- From Table 9, there was an insignificant impact of Supplier Relationship Management on Organizational Performance, as the corresponding P-value is greater than 0.05 (P-value = 0.644). Therefore, Supplier Performance could not be considered as a mediator, as the relationship between Supplier Relationship Management and Organizational Performance had not been found.

- From Table 9, there was a significant impact of Supply Chain Complexity on Organizational Performance, as the corresponding P-value is less than 0.05 (P-value = 0.000). In addition, Table 9 shows that there is a significant impact of Supplier Performance on Organizational Performance, as

the corresponding P-value is less than 0.05 (P-value = 0.003). Moreover, Table 9 shows that the impact of Supply Chain Complexity on Organizational Performance is still significant in the presence of Supplier Performance, as the corresponding P-value is less than 0.05 (P-value = 0.028). Therefore, it could be claimed that Supplier Performance plays a partial mediation role between Supply Chain Complexity and Organizational Performance.

- From Table 9, there was an insignificant impact of Information Sharing on Organizational Performance, as the corresponding P-value is greater than 0.05 (P-value = 0.073). Therefore, Supplier Performance could not be considered as a mediator, as the relationship between Information Sharing and Organizational Performance had not been found.

- From Table 9, there was a significant impact of Information Quality on Organizational Performance, as the corresponding P-value is less than 0.05 (P-value = 0.000). In addition, Table 9 shows that there is a significant impact of Supplier Performance on Organizational Performance, as the corresponding P-value is less than 0.05 (P-value = 0.003). Moreover, Table 9 shows that the impact of Information Quality on Organizational Performance turned to be insignificant in the presence of Supplier Performance, as the corresponding P-value is more than 0.05 (P-value = 0.065). Therefore, it could be claimed that Supplier Performance plays a fully mediation role between Information Quality and Organizational Performance.

- From Table 9, there was a significant impact of Logistics on Organizational Performance, as the corresponding P-value is less than 0.05 (P-value = 0.009). In addition, Table 4-20 shows that there is a significant impact of Supplier Performance on Organizational Performance, as the corresponding P-value is less than 0.05 (P-value = 0.003). Moreover, Table 9 shows that the impact of Logistics on Organizational Performance is still significant in the presence of Supplier Performance, as the corresponding P-value is less than 0.05 (P-value = 0.028). Therefore, it could be claimed that Supplier Performance plays a partially mediation role between Logistics and Organizational Performance.

- From Table 9, there was an insignificant impact of Strategic Location on Organizational Performance, as the corresponding P-value is greater than 0.05 (P-value = 0.177). Therefore, Supplier Performance could not be considered as a mediator, as the relationship between Strategic Location and Organizational Performance had not been found.

Table 9: SEM Analysis for the mediation role of Supplier Performance between Supply Chain Management Practices and Perceived Organizational Performance

			Estimate	P	R^2
Supplier Performance	<---	Supplier Relationship Management	.058	.216	.497
Supplier Performance	<---	Supply Chain Complexity	.042	.286	
Supplier Performance	<---	Information Sharing	.110	.011	
Supplier Performance	<---	Information Quality	.163	.002	
Supplier Performance	<---	Logistics	.076	.040	
Supplier Performance	<---	Strategic Location	.152	.014	
Perceived Organizational Performance	<---	Supplier Relationship Management	.009	.833	.471
Perceived Organizational	<---	Supply Chain Complexity	.179	***	

			Estimate	P	R^2
Performance					
Perceived Organizational Performance	<---	Information Sharing	.051	.217	
Perceived Organizational Performance	<---	Information Quality	.095	.065	
Perceived Organizational Performance	<---	Logistics	.077	.028	
Perceived Organizational Performance	<---	Strategic Location	.048	.413	
Perceived Organizational Performance	<---	Supplier Performance	.208	.003	

The model fit indices; CMIN/DF = 1.700, GFI = 0.845, CFI = 0.949, AGFI= 0.824, and RMSEA = 0.043 are all within their acceptable levels. The SEM model conducted for the mediation role of Supplier Performance between Supply Chain Management Practices and Perceived Organizational Performance is illustrated in Figure 9.

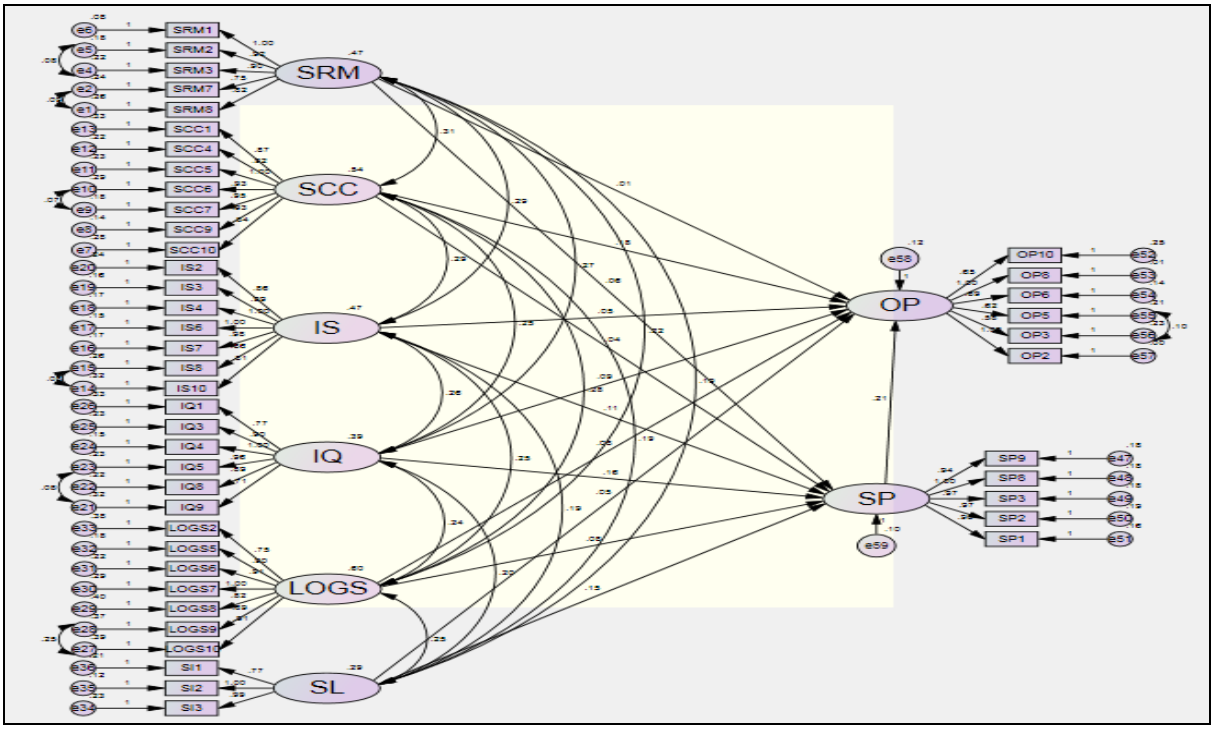

Figure 9: SEM for mediation role of Supplier Performance between Supply Chain Management Practices and Perceived Organizational Performance

Therefore, the third sub hypothesis of the fourth hypothesis **"Supplier Performance mediates the relationship between Supply Chain Management Practices and Perceived Organizational Performance"** is partially supported. Based on the previous results the fourth hypothesis **"Supply Chain Performance mediates the relationship between Supply Chain Management Practices and Perceived Organizational Performance"** is partially supported.

5. Research Discussion

This section tries to identify if the research objectives were achieved or not. According to the first objective, the researcher used a questionnaire, this questionnaire targeted a population of supply chain employees in 61 companies according to the official website of the petroleum agency in Egypt and the result found that there is a significant relationship between supply chain management practices and supply chain performance of oil and gas industries and this result confirmed with several previous studies as (Saudi et al., 2019; Phan et al., 2020; Wiedmer and Griffis, 2021) that indicated that specific supply chain management practices had a positive and significant impact on supply chain performance. In addition, second objective achieves that there is a significant relationship between supply chain performance and perceived organizational performance of oil and gas industries and this finding matched with other studies as (Kumar et al., 2017; Delic et al., 2019; Gawankar et al., 2017).

According to the third hypothesis achieves that there is a significant relationship between supply chain management practices and perceived organizational performance of oil and gas industries and this result agreed with many studies as (Vijayvargy et al., 2017; Barber et al., 2017; Feng et al., 2018) supply chain management practices had equal improvement in organizational performance for both small-medium enterprises and large companies. Furthermore, the fourth objective achieves that supply chain performance mediates the relationship between supply chain management practices and perceived organizational performance and this finding confirmed with previous studies as (Nambirajan, 2013; Barber et al., 2017) that supply chain performance linked between supply chain management practices and organizational performance as well as, supply chain management practices led to better organizational performance.

6. Research Conclusion

This research works on examining the relationship between supply chain management practices (supplier relationship, supply chain complexity, information sharing, information quality, logistics and strategic location) and perceived organization performance through the mediating role of supply chain performance (supply chain integration, supply chain flexibility and supplier performance) in the oil and gas industries operating in Egypt.

Accordingly, this research has developed four main hypotheses, which are: hypothesis one; There is a significant relationship between Supply Chain Management Practices and Supply Chain Performance of Oil and Gas Industries, hypothesis two; There is a significant relationship between Supply Chain Performance and Perceived Organizational Performance of Oil and Gas Industries, hypothesis three; There is a significant relationship between Supply Chain Management Practices and Perceived Organizational Performance of Oil and Gas Industries, hypothesis four; Supply Chain Performance mediates the relationship between Supply Chain Management Practices and Perceived Organizational Performance. This section represents a discussion of the research hypotheses.

7. Research Recommendation

This section provides some recommendations for the decision makers as following;

- Provide to decision makers and companies owners and managers is regarding improving the operation of supply chain. The researcher suggests work on developing the two levels of upstream and downstream of supply chain without neglecting one of them.
- Supply chain could be improved if the company works on optimizing the company-owned inventory. The company should check the quantity of the company-owned inventory and keep the exactly needed quantity without storing more than that, because the holding and storing inventory costs is quite high.

- Improve the distribution network, which will improve the whole supply chain. This improvement could be done through two levels, first one is cluster level through considering each separated function of the company and holistic level that focuses on understanding how the components work together.
- Making a Supply Chain Council, this council has a mission regarding offering a clear strategy for functionality and efficiency, removing the barriers within the organization, as well as giving the directions and aligning the supply chain strategy with the core goals of the company. The supply chain council should also work on review policies and procedures periodically and continuously in order to ensure off the efficiency, avoid bottlenecks in the supply chain and reduce any perceived risks.
- Always works on keeping updated with the latest technology that could be adopted within the operations. Another recommendation provided to decision makers is to build and maintain the supplier relationships on an ongoing basis, even after the deals are finalized.
- Focus on the green practices in order to enhance sustainability and by that improve the performance of the company.

8. Research Limitations and Suggestion for Future

Any scientific research has a limitation that can prevent the generalization of the results. This research faces some limitation regarding the studied variables, the population and sample size and the timing. The researcher had made his study on specific independent variable, mediator and dependent variable. Thus, the researcher suggests for the future researches to include more variables that may affect the perceived operation performance and also test other variables than supply chain performance that may mediate the relation between the supply chain management practices and perceived organizational performance. The study also had a limitation regarding the timing, as the data collected for the study including a limited duration of time so the study recommends for the future researches to include a wider period of time.

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