Analysis of Logistics Outsourcing Situation in Bahrain Manufacturing Companies: A Structural Equation Modelling Approach

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Abstract: The main objective of this study is to analyze the logistics outsourcing situation movement among Bahrain manufacturing companies using SEM approach. In order to achieve the study objective, a quantitative analysis was conducted by adopting A questionnaire technique for data collection. Furthermore, the sample size of 80 employees working in Bahrain manufacturing companies was measured. The study conducted different quantitative analysis such as: correlation and regression analysis to reveal the relationship between the selected variables. Additionally, SEM analysis factors were carried out to impute the association between unobserved constructs from observational variables. Hence, the major findings of this study showed that the economies of sales, core competencies, and higher flexibility are considered as the major advantages for logistics outsourcing services in Bahrain's manufacturing organizations. Besides, there are disadvantages on the other hand such as: lower work morale, lack of corporate knowledge, threatened data security, and partner selection risk. Moreover, there are positive and negative associations between logistics outsourcing (cost reduction, quality, human resource, cooperation, core business, reliability, efficiency, flexibility, and enhanced customer service), and (organizational performance). Though, a significant relationship was shown between the cost reduction, cooperation, and core businesses..

Keywords: Bahrain manufacturing; Outsourcing; Logistics; Advantages; Logistics Service Providers; Factors; Structural Equation Modelling (SEM) analysis.

JEL Classifications: R1, R4, O2, L9, C12

1. Introduction

Nowadays, there is massive growing in competitive pressure and globalization which led many companies to focus more on their logistics operations [20]. This competitive environment in the business world brought further befalls in lead-time reduction, quality deliveries, reliability, and flexibility, while the Logistics Service Providers (LSP) play a critical role in this regard [30]. Consequently, logistics operations impact the individuals' day-to-day lives as well as their economic improvements.

The manufacturing sector covers different kinds of production, such as automobiles, medical supplies, electronic devices, chemical tools, telecommunication devices, and computer products. Currently, firms suffered from major pressure to find solutions for enhancing the profitability and competitive advantage, therefore, organizations depend on the outsourcing to cut the cost by dividing the logistic operations between the external suppliers and the internal ones.

In Bahrain, the logistic operations, manufacturing, and transportation field is the greatest contributor to the Gross Domestic Product (GDP) and accounts for about 20.3 percent of GDP 2016 [2]. Moreover, several Bahraini companies employed successful logistics; and one of the good examples is General Electric (GE). This company runs multiple services such as power production, aircraft engine making, television programming, supply oil and gas products internally and globally with more than 100 nations. Al Mamoora Factory is another good example too, as they create all types of vessels and plastic cartons based on consumers' requirements. Mordor Intelligence [25] reported that the GDP contribution of the manufacturing sector in Bahrain is 16.8%, which is the top-most range across GCC (Gulf Cooperation Countries) for the previous half-century.

As per the above facts, this study aimed to demonstrate the logistics outsourcing situation among manufacturing companies in Bahrain. Therefore, the below objectives were elaborated as a road map of the study:

• To analyze the impact of logistics outsourcing on companies' performance of the Bahrain manufacturing sector.

• To reveal the advantages and disadvantages of logistics outsourcing services in Bahrain manufacturing organizations.

• To find out the impact of logistics outsourcing drivers on the firm performance of the Bahrain manufacturing sector.

2. Literature review

Logistics outsourcing

The logistics outsourcing term is broad, however, it is defined as logistics alliances or third-party logistics [36]. There are several activities related to information-associated services involved in the process such as: tracing and tracking, inventory management, supply chain management. Outbound transportation includes warehousing, freight bill payment/auditing, freight distribution/consolidation, while inbound transportations include the often-outsourced logistics activities [7].

Advantages of logistics outsourcing

The total number of firms used outsource operations is getting increased yearly. One of the main advantages that motivates the firms to outsource is related to the cost reduction at first glance, competitive benefit, experience gained from the last purpose, core business daily activities, risk reduction, and quality provided. The second advantage of the outsourcing is to get a chance to launch new possibilities, contacts, experiences, sophisticated way of thinking [37], beneficial utilization of resources, enhancement of customer services, reduction in the necessity of utilizing own technologies, expansion of market insights, and access gained for utilizing innovations and figure further enhancements. As per Langley's report [21] the firms which chose to outsourced their logistic part to 3PLs reached overall total savings of 5% of order raise accuracy, 5% of inventory cost decrease, 6 % fill rate raise, 9 % of logistics cost decrease and 15% of logistics fixed-asset decrease.

The third significant advantage of outsourcing is the flexibility and the subsequent of essential aspects in the systematized processes, as shown in figure 1.
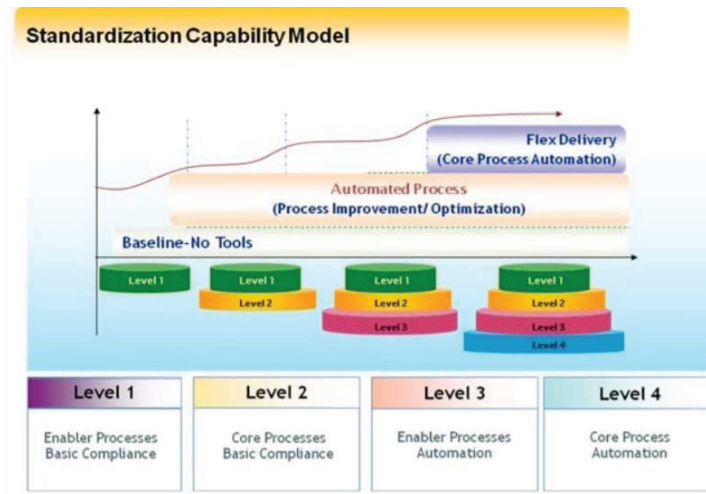
Figure 1. Standardization Capability Model, Source: Adapted from [29]

The first level of recognition of association is within the standard practices and enabler processes. Furthermore; the practices are categorized as ongoing and one-time setup. In the second level, the core processes are considered to be executed. In addition, the third and fourth level indicates automation by involves the enabler processes and the core process automation, which causes the processing platform's advancement [33].

Drivers of logistics outsourcing and organizational performance

Generally, companies outsource different activities in order to attain the following: achieving a particular goal: enhancing the quality of the product, reducing costs, raising market coverage [8], increasing flexibility [11] and getting immediate access to extra capacity. The operating system for enhancing effectiveness which includes proper inflow of information and goods to attain the fast, low-cost and reliable delivery across the network of firms is known as logistics [14]. Gotzamani et al. [12] declared that external cost-based differentiates logistics outsourcing, internal resource-based, and external control-related factors that affect logistics outsourcing decisions. However, Grigorenco et al. [13] suggested that logistics outsourcing is accountable for non-core business operations, causes a decrease in cost and stocks, and stimulates capital turnover.

H1: Drivers of logistics outsourcing impact the organizational performance of Bahrain manufacturing sector

Logistics outsourcing and organizational performance

Logistics outsourcing is defined as "The transfer of a portion or all the logistics operations to be carried out for the firm through a third- party service provider of logistics "[17]. Pratap [31] claimed that TCE and RBV theories could give an optimal description of logistics outsourcing. The RBV theory stated that the industry can realize the abilities and resources from outsourcing process to attain the customer delightful and loyalty [39]. Similarly, the TCE theory highlighted that an avenue is given by the logistics theory to perform business in reduced transaction costs than in-house functions, enhancing the company position [31]. This finding shows the outstanding performance of the organization through logistics outsourcing. Consequently, the below hypothesis has been elaborated.

Conceptual framework

The conceptual framework for this study is elaborated based on Bahrain manufacturing's existing logistics situation, as shown in figure 2.
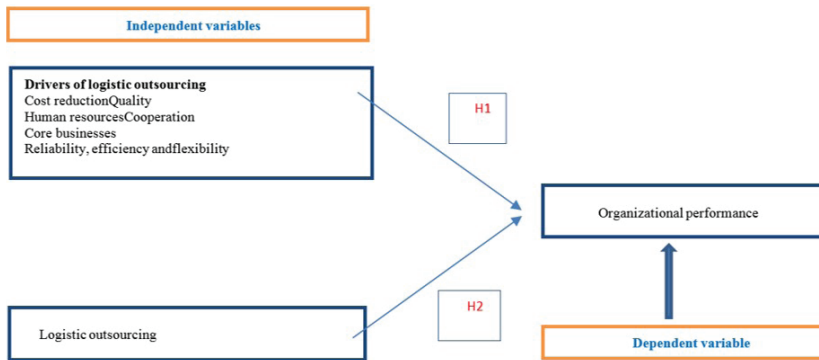

Figure 2. Conceptual framework

Source: collective evidence of [32], [13], [37], [17]

3. Research Method

The core of all studies is data gathering. There is no basis or foundation to build on without factual materials to reveal reasonable results and a rational conclusion. As this study aims to analyze the logistic outsourcing situation in the Bahrain manufacturing sector, the researcher used different instruments to generate the primary data exclusively for this study. The main technique used was the survey (questionnaire) since it handles various populations distributed throughout the country. There is no probability of studying them individually. Essentially, the close-ended questionnaire was utilized in the study for gathering the primary data. The questionnaires consist of two parts. The first part is gathering respondents' personal and organizational information, whereas the second part was developed to achieve the study's objectives. The questionnaire was developed based on reviewing multiple papers and choose independent and dependent variables from the following papers [37], [17]. Moreover, a pilot study was carried out with eight employees based on their responses, and hence, the final questionnaire was constructed.

Additionally, the study intended 80 employees working in Bahrain manufacturing firms through a random sampling method. This kind of sampling helps the researcher to choose the relevant sample in a shorter time. The sampling frame included personnel working in procurement, logistics, operations, supply chain or counterparts. Data analysis was interpreted through the SPSS 25.0 version with the help of quantitative data. Validity was tested through a pilot study. Reliability analysis, descriptive statistics, and inferential statistics were carried out as well. Inferential statistics include correlation, regression analysis, factor. Also, correlation and regression analysis involve showing the relation between framed variables and proving the hypotheses too.

4. Results

This section reviewed in-depth analysis of respondents' personal information, as well as it carries out both descriptive and inferential statistics.

Frequency statistics

Table 1. Gender

		Frequency	Percent
Gender	Male	26	32.5
	Female	54	67.5
Age	20 – 29	37	46.3
	30 – 39	22	27.5
	40 – 49	15	18.8
	>50	6	7.5
Education level	Upper secondary education	21	26.3
	Diploma / certificate / HSC / STPM	29	36.3
	Bachelor's degree	23	28.8
	Master's degree	3	3.8
	Ph.D. Degree	4	5.0
Opinion about logistics out-sourcing	Save costs and time	17	21.3
	Increase flexibility and agility	11	13.8
	Increase efficiency	19	23.8
	Share knowledge and experience	7	8.8
	Economies of sale	11	13.8
	Decrease heavy assets investment	15	18.8

The frequency of gender presented in Table 1. The results indicated that among 80 respondents, 67.5% were females, and 32.5% were males, the frequency of ages was tested accordingly. Moreover, the results showed that 46.3% of the respondents ages were from 20-29, 27.5%% ages were from 30-39, 18.8% ages were for 40-49 years of age, and the last category whose ages were above 50 years represented 7.5%. The marital status frequency revealed that 52.5% of the respondents were married, while 47.5% were unmarried. Furthermore, the frequency of the educational level of the respondents showed that 26.3% have a secondary education, 36.3% were Diploma/Certificate/HSC/STPM holders, 28.8% were Bachelor's Degree holders, while 3.0% were Master's degree holders and 5.0% granted a Ph.D. degree. Though, 23.8% of the respondents believed that logistics outsourcing increases the efficiency, 21.3% declared that it saves cost and time, 18.8% stated that it decreases heavy asset investment, 13.8% declared that it is considered as economies of scales, 13.8% stated that it can

increases flexibility and agility, while 8.8% mentioned that it shares knowledge and experience.

Table 2. Reasons/Drivers for logistics outsourcing

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Cost reduction		2	29	26	23
Quality		4	37	21	18
Human resources		3	33	28	16
Cooperation		2	26	33	19
Core businesses	1	1	26	32	20
Reliability, efficiency, and flexibility		6	30	28	16
Risk reduction		5	22	37	16
Enhanced customer services	1	4	27	30	18

Table 2 revealed the main drivers for logistics outsourcing, considering the cost reduction, 23 respondents were strongly agreed that cost reduction is one of the logistics outsourcing drivers, 26 were agreed, 29 were neither disagreed nor agreed with the reason, 2 respondents were disagreed. As per the results, the impact of the quality driver showed that 37 respondents were neutral, 21 were agreed, 18 strongly agreed, while 4 respondents were disagreed with the statement. The impact of human resource showed that 33 respondents were neutral, 28 were agreed, 16 were strongly agreed, while 3 of them disagreed. The impact of cooperation showed that 33 and 19 respondents were agreed and strongly agreed, 26 were neutral and 2 respondents were disagreed. Besides, the impact of core businesses showed that 32 respondents were agreed, 26 were neutral, 20 were strongly agreed while 2 respondents were disagreed. Reliability, efficiency, and flexibility showed that 30 respondents were neutral, 28 were agreed, 16 were strongly agreed, however, 6 respondents were disagreed. The impact of risk reduction showed that 37 respondents were agreed, 22 were neutral, 16 were strongly agreed, while 5 respondents were disagreed. The last driver is related to the impact of enhanced customer service, and showed that 30 respondents were agreed, 27 were neutral, 18 were strongly agreed, while 4 respondents were disagreed, as well as a single respondent was strongly disagreed.

Table 3. Advantages of logistics outsourcing in manufacturing companies

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Higher quality		5	34	25	16
Efficiency		4	24	37	15
Cost savings	1	1	26	21	31
Higher safety		5	32	29	14
Focus on core competences	1	1	24	32	22
Higher flexibility			30	28	22
Economies of Sales	1		25	17	37

Table 3 tabulated the advantages of logistics outsourcing in manufacturing companies. The results

showed that in terms of higher quality, 34 respondents were neutral, 25 were agreed, 16 were strongly agreed, while 5 were disagreed. For efficiency, 37 respondents were agreed, 24 were neutral, 15 respondents were strongly agreed, however, 4 respondents disagreed. The cost savings results showed that 31 and 21 respondents were between strongly agree and agree, 26 respondents were neutral, though, 2 respondents were disagreed and strongly disagreed respectively. The higher safety showed that 32 respondents were neutral, 29 were agreed, 14 were strongly agreed, however, 5 were disagreed. Further, focus on core competencies showed that 32 respondents were agreed, 24 were neutral, 22 were strongly agreed, while 2 respondents were disagreed and strongly disagreed respectively. In addition, higher flexibility showed that 30 respondents were neutral, 28 were agreed, and 22 were strongly agreed. The economies of scale showed that 37 respondents were strongly agreed, 25 were neutral, 17 were agreed, however, only one respondent was strongly disagreed.

Table 4. Disadvantages of logistics outsourcing in manufacturing companies

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Lower work morale		7	24	28	21
Disqualified employees	3	4	39	20	14
Lack of corporate knowledge		5	25	29	21
Dissatisfied customers	2	5	39	21	13
Threatened data security	1	2	30	26	21
Partner selection risk	2	4	32	22	20

Moreover, the lack of corporate knowledge showed that 29 respondents were agreed, 25 were neutral, 21 were strongly agreed, while 5 respondents only disagreed. For the dissatisfied customers, 39 respondents were neutral, 21 were agreed, 13 were strongly agreed, 5 were disagreed, while 2 were strongly disagreed. For threatening data security, 30 respondents were neutral, 26 were agreed, 21 were strongly agreed, 2 were disagreed, while 1 respondent was only strongly disagreed. For the partner selection risk, 32 were neutral, 22 were agreed, 20 were strongly agreed, 4 were disagreed, while 2 respondents were only strongly disagreed.

Table 5. Correlation between Drivers for logistics outsourcing and Organizational performance

	Organizational performance	Cost reduction	Quality	Human resources	Cooperation	Core businesses	Reliability, efficiency, and flexibility	Risk reduction	Enhanced customer services
Organizational performance	1	.283*	.193	.053	.310**	.226*	.014	.217	.028
Cost reduction	.283*	1	-.056	.179	.248*	.269*	.029	.106	.073
Quality	.193	-.056	1	.159	.129	.072	.036	.337**	.067
Human resources	.053	.179	.159	1	.016	.247*	.199	.136	.206

Cooperation	.310**	.248*	.129	.016	1	-.028	.150	.260*	.143
Core businesses	.226*	.269*	.072	.247*	-.028	1	.158	.139	.249*
Reliability, efficiency andflexibility	.014	.029	.036	.199	.150	.158	1	.065	.387**
Risk reduction	.217	.106	.337**	.136	.260*	.139	.065	1	.302**
Enhanced customer services	.028	.073	.067	.206	.143	.249*	.387**	.302**	1
*. Correlation is significant at the 0.05 level (2-tailed).									
**. Correlation is significant at the 0.01 level (2-tailed).									

Pearson's correlation coefficient is a statistical tool used to determine the correlation among the variables. Table 5 showed the correlation between drivers for logistics outsourcing and organizational performance. The results declared that the correlation between organizational performance and cooperation 0.310**, between the organizational performance and risk reduction 0.217, however, between the organizational performance and enhanced customer service 0.028. Moreover, the correlation between cost reduction and human resources 0.179, between the cost reduction and reliability, efficiency, and flexibility were .217, between the cost reduction and risk reduction.176, between the quality and human resource.033, between the quality and core business.000, between the quality and reliability, efficiency, and flexibility were .103, = between the quality and enhanced customer service.046, between the human resource and cooperation.043, between the human resources and risk reduction.064, between the human resources and enhanced customer service.117, between the cooperation and risk reduction.203, between the cooperation and enhanced customer service.090, between the core business and reliability, efficiency and flexibility were .015, between the core business and enhanced customer service.130, and the correlation between risk reduction and enhanced customer service.296.

As per the above results, it showed clearly that all variables were moderately associated with organizational performance and the significance level of p-value was .001 which indicated the significant relationship between the variables. Furthermore, the correlation between organizational performance and cost reduction -.051, between the organizational performance and quality -.045, between the organizational performance and human resource -.190, between the organizational performance and core business -.060, between the organizational performance and reliability, efficiency and flexibility -.098, between the cost reduction and quality -.131, between the cost reduction and cooperation -.035, between the cost reduction and core business -.257, between the cost reduction and enhanced customer service -0.044, between the quality and cooperation -.049, between the quality and risk reduction -.044, between the human resources and core business -.037, between the human resources and reliability, efficiency and flexibility -.117, between the cooperation and core business -.227, between the cooperation and reliability, efficiency and flexibility -.162, between the core business and risk reduction -.076, between the reliability, efficiency, flexibility, and risk reduction -.049, between the reliability, efficiency, flexibility, and enhanced customer service -.089. As per the above analysis, the specified variables have a negative relationship with the organizational performance at significance 0.001.

Table 6. Association between Drivers for logistics outsourcing and Organizational performance

Model	Unstandardized Coefficients		R square	F value	p-value
	B	**Std. Error**			
(Constant)	2.080	.545			
Cost reduction	.123	.078			
Quality	.092	.075			
Human resources	-.031	.080			
Cooperation	.177	.083	0.214	2.416	0.023
Core businesses	.135	.079			
Reliability, efficiency and flexibility	-.018	.077			
Risk reduction	.065	.084			
Enhanced customer services	-.056	.079			
a. Dependent Variable: Organizational performance					

Table 6 declared the association between drivers for logistics outsourcing and organizational performance using step-wise multiple linear regression tests. It clearly showed the positive affection between the cost reduction and organizational performance, since the p-value is (β= .123, F= 2.416, Sig=0.023). However, P-value of the quality is (β= .092, Sig=0.023), human resource (β= -.031, Sig=0.023), cooperation (β= .177, Sig=0.023), core business (β= .135, Sig=0.023), and reliability, efficiency and flexibility (β= -.018, Sig=0.023) which indicated the negative impact on organizational performance. The risk reduction value is (β= .065, Sig=0.023), enhanced customer service (β= -.056, Sig=0.023) also showed the negative impact on organizational performance. Thus, there is a positive and negative association between drivers for logistics outsourcing and organizational performance. Besides, the value of R-square is 0.214.

Table 7. Correlation between logistics outsourcing and organizational performance

	Organizational performance	Impact of logistics outsourcing
Organizational performance	1	.515[**]
Impact of logistics outsourcing	.515[**]	1
**. Correlation is significant at the 0.01 level (2-tailed).		

Table 7 revealed the correlation between independent variables and the dependent variable of organizational performance. The study findings showed a significant difference between logistics outsourcing and organizational performance since the correlation value is .515 (r= .515, p>0.01).

Table 8. Association between logistics outsourcing and Organizational performance

Model	Unstandardized Coefficients		R square	F value	p-value
	B	Std. Error			
(Constant)	1.573	.447			
Logistics outsourcing enhance the knowledge of employees	.194	.063			
Increase the customer demand	.221	.064	0.364	8.46	0
Increase the value of the firm among customers	.199	.067			
Improve the performance of the firm	-.055	.072			
Increase competitive advantage	.052	.061			
a. Dependent Variable: Organizational performance					

Table 8 presented the association between logistics outsourcing and organizational performance using stepwise multiple linear regression tests. Since p-value for logistic outsourcing is (β= .194, F= 8.46, Sig=0.000**) this showed a positive impact on organizational performance. The P-value of increasing the firm's value among customers is (β= .199, Sig=0.000**) which positively impact organizational performance as well. In contrast, increase the customer demand value (β= .221, Sig=0.000**), as well as, increase competitive advantage value (β= .052, Sig=0.000**) and improve the firm performance value (β= -.055, Sig=0.000**) revealed a negative impact on organizational performance. Consequently, there is a positive and negative association between logistics outsourcing and organizational performance. Moreover, the value of R-square is 0.364.

ANOVA Test

Table 9. ANOVA test for showing variation among groups

		Sum of Squares	df	Mean Square	F	Sig.
Cost reduction	Between Groups	9.975	8	1.247	1.815	.088
	Within Groups	48.775	71	.687		
	Total	58.750	79			
Quality	Between Groups	8.899	8	1.112	1.491	.176
	Within Groups	52.988	71	.746		
	Total	61.888	79			
Human resources	Between Groups	5.892	8	.737	1.078	.388
	Within Groups	48.495	71	.683		
	Total	54.388	79			
Cooperation	Between Groups	11.359	8	1.420	2.512	.018
	Within Groups	40.129	71	.565		
	Total	51.488	79			

Core businesses	Between Groups	8.609	8	1.076	1.563	.152
	Within Groups	48.879	71	.688		
	Total	57.488	79			
Reliability, ef-ficiency, andflex-ibility	Between Groups	7.485	8	.936	1.229	.295
	Within Groups	54.065	71	.761		
	Total	61.550	79			
Risk reduction	Between Groups	12.083	8	1.510	2.510	.018
	Within Groups	42.717	71	.602		
	Total	54.800	79			
Enhanced customer services	Between Groups	9.110	8	1.139	1.447	.193
	Within Groups	55.890	71	.787		
	Total	65.000	79			

Table 9 showed the ANOVA analysis outcome, and the statistically difference between the group means. It is recognized that when the significance value is greater or equal to 0.5, it means that no difference in the mean period to complete the spreadsheet problems within different deliberated courses. Though, it is not recognized which of the particular groups is different. This can be recognized in the multiple comparison tables, which comprises the Tukey post hoc test results.

Factor Analysis

Table 10. Communalities

	Initial	Extraction
Drivers for logistics outsourcing		
Cost reduction	1	.689
Quality	1	.626
Human resources	1	.612
Cooperation	1	.688
Core businesses	1	.583
Reliability, efficiency, and flexibility	1	.786
Risk reduction	1	.579
Enhanced customer services	1	.742
Advantages of logistics outsourcing		
Higher quality	1	.795
Efficiency	1	.618
Cost savings	1	.650
Higher safety	1	.582
Focus on core competences	1	.672
Higher flexibility	1	.720

Economies of Sales	1	.771
Disadvantages of logistics outsourcing		
Lower work morale	1	.639
Disqualified employees	1	.745
Lack of corporate knowledge	1	.668
Dissatisfied customers	1	.637
Threatened data security	1	.699
Partner selection risk	1	.748
Impact of logistics outsourcing		
Logistics outsourcing enhance the knowledge of employees	1	.662
Increase customer demand	1	.694
Increase the value of the firm among customers	1	.720
Improve the performance of the firm	1	.651
Increase competitive advantage	1	.580
Organizational performance		
Employees are satisfied. As a result, provide complete support to increase the performance of the firm	1	.582
Increasing customer demand enhance the performance of the firm	1	.690
Flexibility and Reliability of outsourcing enhance the performance level of the organization	1	.801
Extraction Method: Principal Component Analysis.		

The communality is used to analyze how the factors illustrate the variables. The results are represented in table 10 If the communality value is at least 1, then the factors clearly describe the variables. Extraction communalities are variance estimation in each of the variables accounted through factors from the factor solution. The variables with minimum values represent that it is appropriate for the factor solution and more likely should be removed from the analysis. Every specified has represented the variance proportion rate in all the variables, and each variable is illustrated through extracted factors. If the value is under 0.5 for any communality variable, it needs to be eliminated from the analysis that embraces variables with a value under 50%.

Table 11. Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.898	16.889	16.889	4.898	16.889	16.889
2	2.074	7.152	24.041	2.074	7.152	24.041
3	1.867	6.439	30.480	1.867	6.439	30.480
4	1.774	6.117	36.597	1.774	6.117	36.597

5	1.622	5.592	42.189	1.622	5.592	42.189
6	1.430	4.931	47.120	1.430	4.931	47.120
7	1.366	4.710	51.829	1.366	4.710	51.829
8	1.265	4.361	56.190	1.265	4.361	56.190
9	1.163	4.011	60.201	1.163	4.011	60.201
10	1.112	3.836	64.037	1.112	3.836	64.037
11	1.059	3.650	67.687	1.059	3.650	67.687
12	.934	3.220	70.907			
13	.897	3.093	73.999			
14	.871	3.003	77.003			
15	.737	2.543	79.545			
16	.706	2.435	81.980			
17	.684	2.360	84.340			
18	.648	2.234	86.574			
19	.594	2.048	88.622			
20	.555	1.913	90.535			
21	.504	1.738	92.273			
22	.455	1.568	93.841			
23	.398	1.371	95.212			
24	.315	1.087	96.298			
25	.302	1.042	97.340			
26	.239	.823	98.163			
27	.207	.715	98.878			
28	.182	.627	99.505			
29	.144	.495	100.000			
Extraction Method: Principal Component Analysis.						

The total variance explained in table 11. Kaiser's Criterion described that the elements with Eigen value of 0.1 or above needs to be considered for assessment (Kaiser, 1958). Eigen value represents the number of factors extracted whose addition has to be equivalent to the total amount of items that cause to undergo factor analysis. The subsequent item showed that all factors are obtainable from the analysis accompanied by their Eigen values. The given table indicated the total variance explained by all the factors that were obtained. The Eigen values of the over 1.0 were considered to rotate through Varimax software for generating an orthogonal solution. Therefore, one factor is taken for the factor matrix.Table 12. Component Matrix.

	1	2	3	4	5	6	7	8	9	10	11
Cost reduction	.355	.364	-.222	.333	-.094	-.082	-.349	.310	.188	-.032	.007
Quality	.405	-.453	.098	.103	-.106	.157	.321	.027	-.146	-.258	.096
Human resources	.359	.378	.457	.002	-.110	.033	.175	-.063	-.088	.246	.123
Cooperation	.449	-.090	-.306	-.262	-.015	.115	-.401	.035	-.042	-.120	.354
Core businesses	.480	.259	.253	.221	.151	-.019	.086	.337	-.021	-.158	-.060
Reliability, efficiency, and flexibility	.346	.074	.361	-.353	.173	.226	-.036	-.067	.549	-.061	-.112
Risk reduction	.491	-.237	.110	-.037	-.457	.023	-.003	-.038	-.138	-.184	-.065
Enhanced customer services	.385	.102	.524	-.169	-.026	.201	-.346	-.123	.002	-.322	.030
Higher quality	.313	.169	-.153	-.197	-.104	-.293	.403	.437	.253	-.119	.280
Efficiency	.376	.092	-.306	.160	-.246	.311	.354	.239	-.073	.036	.046
Cost savings	.552	.112	.119	.243	-.156	.122	-.183	-.170	.024	-.040	.394
Higher safety	.504	.132	.030	-.340	-.033	-.336	-.099	.053	-.122	.152	-.174
Focus on core competences	.441	-.355	-.097	.140	.266	-.267	-.167	-.004	.205	.030	.331
Higher flexibility	.173	-.118	.154	.692	.225	.281	-.050	.053	.133	-.128	.072
Economies of Sales	.374	.126	.020	.129	-.478	.049	.260	-.356	.332	.219	-.121
Lower work morale	.409	-.258	-.054	-.181	-.123	.375	.019	-.179	-.128	.365	.177
Disqualified employees	.276	.474	.098	-.055	.273	-.180	.249	-.128	-.280	-.406	-.052
Lack of corporate knowledge	.360	-.046	.430	.095	-.095	-.406	-.187	.025	.179	.256	-.185
Dissatisfied customers	.485	-.285	.316	-.115	.118	.012	.028	.043	-.414	-.028	-.135
Threatened data security	.402	.085	-.460	-.218	.260	.265	.065	-.283	.125	-.061	-.172
Partner selection risk	.452	-.084	-.124	-.248	-.221	.227	-.277	.409	-.098	.025	-.324
Logistics outsourcing enhance the knowledge of employees	.446	.433	-.272	.105	-.345	-.082	.078	-.173	-.079	-.126	-.079
Increase customer demand	.458	-.350	.015	.217	.236	-.326	.231	-.312	-.050	-.008	.001
Increase the value of the firm among customers	.418	-.114	.018	-.222	.505	.218	.235	.282	.043	.207	-.019
Improve the performance of the firm	.114	.535	.124	.089	.342	.275	.084	-.004	-.080	.342	.080
Increase competitive advantage	.375	.117	-.357	-.088	.251	-.003	-.059	-.298	.177	-.245	-.211

Employees are satisfied. As a result, provide complete support to increase the performance of the firm	.537	-.366	-.074	-.122	-.003	-.237	.171	.074	.208	.063	-.038
Increasing customer demand enhance the performance of the firm	.454	.231	-.258	-.046	.161	-.274	-.200	-.128	-.313	.261	.199
Flexibility and Reliability of outsourcing enhance the performance level of the organization	.411	-.158	-.216	.565	.128	.034	-.137	.051	-.092	.147	-.415
Extraction Method: Principal Component Analysis.											
a. 11 components extracted.											

The component matrix's to cut down the number of factors on which the variables are presented in the given study have high loadings. Table 12 showed the component matrix. All the variables are significantly loaded upon factors. These factors can be utilized as variables for the forthcoming analysis.

SEM Analysis

Structural Equation Modeling (SEM) is the approach to estimate and represent a group of relations within the variables (latent constructs and measured variables). The below-given model (diagram) allows the specifications of association among outsourcing logistics drivers and organizational performance.
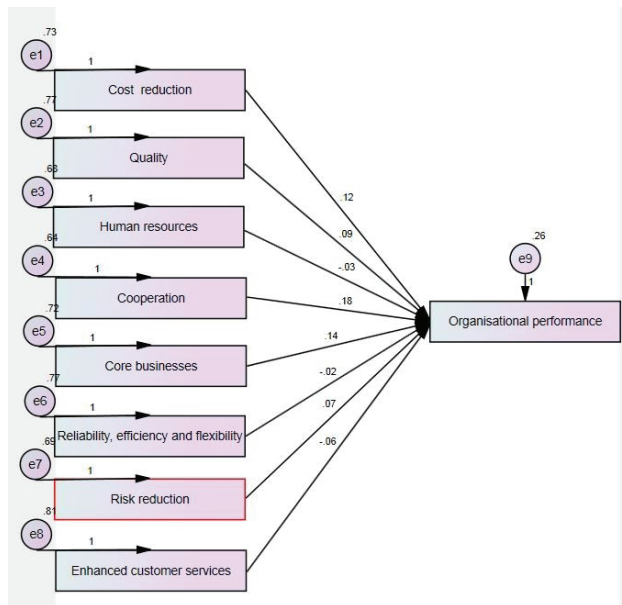

Figure 3. SEM Analysis

The SEM was conducted based on the data collected from the questionnaire. The hypothesized model suggested that outsourcing logistics drivers influenced the organizational performance. Both AMOS and SPSS were utilized for analyzing the assumptions. The cost reduction factor and organizational performance showed very high coefficients (V_12) for model fit in factor 1. Factor 2 showed very high coefficients (V .09) at quality and organizational performance for model fit. Factor 3 revealed very high coefficients (V -.03) in the factor of human resource and organizational performance. Factor 4 represented a high coefficient (V .18) in the factor of Cooperation and organizational performance. Factor 5 indicated a high coefficient (V 14) in the factor of core business and organizational performance. Factor 6 expressed a high coefficient (V -.02) at Reliability, efficiency, flexibility, and organizational performance. Factor 7 presented a high coefficient (V .07) in the factor of risk reduction and organizational performance. Factor 8 showed a high coefficient (V -0.06) at the factor of enhanced customer service and organizational performance. Overall, the SEM model generated adequate model fit.

Table 13. Regression Weights

			Estimate	S.E.	C.R.	P
Organizational performance	<---	Cost Reduction	.123	.068	1.820	.069
Organizationalperfor-mance	<---	Cooperation	.177	.072	2.460	.014
Organizationalperfor-mance	<---	Core businesses	.135	.068	1.980	.048
Organizationalperfor-mance	<---	Reliability efficiency andflexibility	-.018	.066	-.280	.779
Organizationalperfor-mance	<---	Risk reduction	.065	.070	.936	.349
Organizationalperfor-mance	<---	Enhanced customer services	-.056	.064	-.871	.384
Organizationalperfor-mance	<---	Human resources	-.031	.070	-.435	.664
Organizationalperfor-mance	<---	Quality	.092	.066	1.402	.161

Variances

Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P
e1	.687	.109	6.285	***
e2	1.219	.194	6.285	***
e3	1.121	.178	6.285	***
e4	1.119	.178	6.285	***
e5	1.192	.190	6.285	***

e6	1.171	.186	6.285	***
e7	.819	.130	6.285	***
e8	1.887	.300	6.285	***
e9	.212	.034	6.285	***

According to table 13, Cost reduction regresses significantly at organizational performance (S.E= .109 and CR= 6.285). Cooperation regress weight on organizational performance (S.E= .194 and CR= 6.285). Core businesses regress weight at organizational performance (S.E= .178 and CR= 6.285). Reliability efficiency and flexibility regress weight on organizational performance (S.E= .178 and CR= 6.285). Risk reduction regress weight on organizational performance (S.E= .190 and CR= 6.285). Enhanced customer services regress weight on organizational performance (S.E= .186 and CR= 6.285). Human resources regress weight on organizational performance (S.E= .130 and CR= 6.285). Quality regress weight on organizational performance (S.E= .300 and CR= 6.285) and finally e9 regress weight on organizational performance (S.E= .034 and CR= 6.285).

2. Discussion

Objective 1: To show the advantages and disadvantages of logistics outsourcing services in specific to manufacturing organizations in the context of Bahrain.

Most of the study participants accepted that economies of sales focus on core competencies and higher flexibility as major advantages for logistics outsourcing services. In addition to this, higher quality, efficiency, cost savings, and higher safety were also identified as advantages. In line with this, some previous studies like [37] presented the same. Moreover, most of the study participants accepted some common disadvantages of logistics outsourcing services, including lower work morale, lack of corporate knowledge, threatened data security, and partner selection risk. Similar findings were found in the research of Nili et al. [28] and [37].

Objective 2: To empirically find out the drivers of logistics outsourcing and its impact on the firm performance of the Bahrain manufacturing sector

The study highlighted several drivers for logistics outsourcing, hence, there is a positive and negative association between logistic outsourcing and organizational performance. However, a significant relation was observed only among cost reduction, cooperation, and core businesses. The previous studies such as Bolumole et al. [5] and Grigorenco et al. [13] agreed as well.

Objective 3: To analyze the impact of logistics outsourcing on the Bahrain manufacturing sector.

The study findings revealed that there is a positive as well as negative association observed between logistics outsourcing and organizational performance. Some previous studies showed similar findings. Among organizations, the logistics expanding can significantly get uncovered through the development and its significant part in upgrading the client support [21],[17], [32].

3. Conclusion

The study concluded that the economies of scale focus on core competencies, and higher flexibility are the significant advantages for logistics outsourcing services specific to manufacturing organizations in Bahrain. However, the findings presented some major disadvantages as well such as lower work morale, lack of corporate knowledge, and threatened data security and partner selection risk.

Furthermore, there is a positive and negative association between logistics outsourcing (cost reduction, quality, human resource, cooperation, core business, reliability, efficiency, flexibility, and enhanced customer service) and organizational performance. However, a significant relation was observed only among cost reduction, cooperation, and core businesses.

To sum up, it is clear that there is a substantial difference between logistics outsourcing and organizational performance.

4. Managerial implications

The study's findings will improve the logistics operations of the entire Bahrain manufacturing companies and highlight the benefits and disadvantages of logistics outsourcing. Managers should consider the findings as a key idea to formulate strategies to achieve a competitive advantage in certain sectors. Managers should also be prepared for logistics outsourcing issues and make stringent strategies to consider outsourcing's crucial drivers.

5. Limitations

This paper is limited to manufacturing companies in Bahrain. Hence, future researchers should analyze the manufacturing field of some other countries.

The study focused only on the manufacturing sector; therefore, future researchers should consider other service sectors to examine the present situation of logistic outsourcing.

This study was conducted without comparison; therefore, future researchers may analyze such situation with comparison to avail further details.

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