

Examining the Mediating Role of Agile Supply Chain Approach between ERP System implementation and Organizational Performance

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Abstract - The study examine relationship between implementing ERP systems on the boosting of the organizational performance, in addition, to examine the mediating role of agile supply chain approach to achieve the targeted performance enhancements in manufacturing listed firms in Amman Stock Exchange (ASE). The study population entails all manufacturing listed firms in Amman Stock Exchange (ASE), particularly the top retail firms operate in the Jordanian market constitutes of (77) firms. The consent of conducting an interview has been taken with a total of (367) questionnaire were self-distributed. The unit of analysis is at a firm level, the deployed sample is a purposive sample. The study revealed that the ERP solutions are widely implemented in the mid and large sized organizations, due to its contribution in making all sub systems and modules communicate effectively, allowing the access to timely, and accurate information, under the set of authorization levels. Therefore, the Firm performance boosted because of implementing an effective ERP system. On the other side the study indicated that the implementing the agile supply chain approach as a method that would help in responding successfully to the customer and market demands, with no risk of having accumulated inventory on the stock. The study fulfils a novel aspect in examining the effect of ERP in the case of implementing the agility approach. The study encourages to consult expertise with the best practices to implement the ERP solutions in parallel with agile supply chain, also the yet to coming research need to focus of such factors rather than ERP effectiveness.

Keywords- ERP System; Agile Supply Chain; IT Management; Financial Performance.

JEL Classification- R41; L16; M1; L25.

1. Introduction

Enterprise resource planning (ERP) is business process management system that allows an organization to use a system of integrated

applications to manage the business and automate many back off functions related to technology, services and human resources [1]. Notably, thousands of businesses are running ERP successfully worldwide and there are masses of ERP vendors, but the top rated ones are: SAP, People soft, and Oracle. SAP's market share exceeds (50%) in chemical and pharmaceuticals industries due to its capabilities and superior functions [2] [3]. On the same context, ERP system has the following characteristics namely; Standardization : ERP sets standardized business processes and accumulative database, especially, in the case of multinational organization; Continuous timely monitoring: the base principle of ERP is the real-time synchronizing by offering reporting system to the observers and internal auditors on daily/weekly/monthly basis and on demand to serve in their daily work;

Transparency: ERP systems deliver a crystal-clear business circle. A clear business circle means that there is one and only one approach to achieve the process that will never change; and finally Assertive preventive controls: ERP have built-in controls that developed based on supervision on duty (SOD) rule, where no transactions can pass through the system without being approved and authorized [4]. On the other side, the agile supply chain consider as essentially practical approach to managing supply networks and developing flexible capabilities to satisfy the fast changing customer demand. Thus, agile supply chains are based on the sensitivity to consumers demand. As, sensitivity refers to the ultimate consumers demand, in terms of instability of demand. As [5] explains, the agile supply chain has four major dimensions, namely; Market sensitive; Virtual supply chain; Process in generation; and Network. Agile supply chain has been consider as an essential part of ERP solutions adopted by several firms. As first, need to interact with several suppliers and partners to obtain the raw materials and resources at the right time and at the right amount to bring finished goods to market. Thus, firms are actively concentrating on several supply chain agile approach to improve

productivity, enhance product quality, and cut down on manufacturing costs, which may lead to better financial performance. Accordingly, the current study will attempt to explore relationship between implementing ERP systems on the boosting of the organizational performance, in addition, to examine the mediating role of agile supply chain approach to achieve the targeted performance enhancements.

2. Theoretical background

ERP system consider as complicated nature, which leads to difficulties implementation effectiveness [6]. Despite these difficulties the adoption of ERP system leads to financial advantages to the companies such as improved overall liquidity; accounts receivable management; and helps managers can effectively use non-financial performance indicator which in turn promote them to adopt the system [7] [8] [9].

In addition, ERP system project must be analyzed carefully due to the high deployment expenses. It is preferred to mention that (70%) of ERP systems' failures worldwide were related to inappropriate implementations, even though, some of these fallers after 3 years [3]. Once the benefits of the ERP were revealed, auditors started cooperating and operating in a way to improve their identity [3] [10].

On other side several studies examine the extent implementation of the ERP system as these studies concluded that the extent of adoption of the ERP system differ from develop an developing countries as on the last ones still whether partial or limited implementation whereas the developed countries give a contrast results as indicated to high level of adoption, such as [11] [12] [13] [14].

As an example from emerging markets, [15] provided initial evidence on the value-relevance of ERP to internal auditing function in multinational organizations in Egypt. The paper deployed a case study style and nine interviews with organizations that already applied ERP systems. The results specify that any failure to guarantee the effectiveness of internal controls in the new ERP system-working environment would lead to legitimacy matters for internal auditing function. Thus, it is essential that the organizations manage internal auditing function in the working environment of ERP system, since it is critical to the fulfillment of its responsibility towards a sound governance system and to sustain its legitimacy. Accordingly, another type of studies conducted in order to find out the main factors which effect the adoption level in order to promote the field of the importance of the adoption of ERP system and increase the level of awareness, as a results the main factors which showed significant impact of the level of implementation were; organizational culture; top

management support; project management; users' perception of ERP quality, computer self-efficacy; organizational support; training; knowledge capability; user participation; and social capital and post-training self-efficacy, [16] [17] [18] [19]. Regarding the studies, which tackled the effect of ERP system on the organizational performance specifically, the literature examined the financial and non-financial performance; however, the financial measurements were prevalent. The studies indicated that the adoption of ERP system improve the financial performance alongside with beneficial in reducing inventory, improving customer services and improving communications, for instance; [8] [20] [21] [22] [23] [24] [25] [26]. From a recent perspective that examined the associated between ERP system and Supply chain [27] a framework for the demand on ERP systems from supply chain PM is developed containing ten demands: a theoretical contribution. The studied ERP systems are found overall to have good supply chain PM capabilities, where the most supporting systems in this sense are Oracle and iScala. [28] Indicated that the successful application and the effective usage of ERP system can contribute concerning improving supply chain management performance. Several studies indicated that the adoption of ERP results in enhancing organizational capability and supplier capability for instance; [29] [30] [24] [31] [32].

3. Study objectives & significant

This study seeks to accomplish the objectives of exploring the relationship between implementing ERP systems on the boosting of the organizational performance, also to examine the mediating role of agile supply chain approach to realize the targeted performance enhancements. Finally, this study contribution placed on two aspects; firstly, the theoretical aspect by providing an empirical piece of research to the scholars and yet to come researching projects who are seeking to dig deeply in the justification of merging the highly cost information technology systems to the business deep-rooted and contemporary sciences. Secondly, the practical aspects, by providing a set of evidence-based recommendations to the policy makers and senior management to take the initiative of such projects to adopt or invest more in the ERP projects, besides to the implantation of agility in the supply chain process.

4. The study methodology

4.1 Conceptual framework

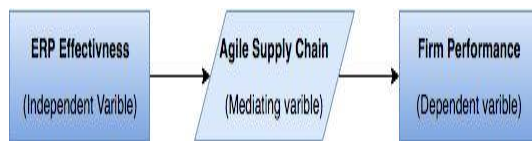


Figure 1. The Study model

4.2 The Measurement Model and Questionnaire Development

4.2.1 The Independent Variable: ERP Effectiveness.

In order to measure the independent variable "ERP effectiveness [33] information systems success model was adopted, the selection of such a measurement was after reviewing several alternatives and carefully chosen due to a set of pros. One of these pros is presented by the fact that this measurement is the top cited one in this field according to [34] Furthermore, the constructs of this model deliver holistic and comprehensive vision within the organization, by providing a detailed classification of success dimensions. Finally, the testing of the validity of the model dimensions of ERPs` success was exposed [34].

The dimensions of [33] are; the quality of the system, service, and information, which impact the level of user satisfaction and the intention of using it by the end users. Accumulatively, the higher intention to use and the user satisfaction together will in its turn, enhance the final net benefits [35] For this study purposes, the effectiveness of ERP system will be measured by four out of six measures;

4.2.2 Demand Driven Supply Chain (Agility Supply Chain)

The agile supply chain is about the firm's ability to meet the dramatic changing in customers' needs with a fully consideration of the supply network. Most supply chains still suffer from the lack of processes appropriateness, gaps in the used methods, and tools. Based on this, many researchers and practitioners agreed on the fact that the supply chain should be agile, that is, the quickly respond to the volatile demand and the efforts towards short production life cycles. The agility supply chain approach is extremely vital, since it does not depend on the forecasting, yet, it is for rapidly introducing of new products and reacting to the rivals in an effective

the information quality, the system quality, the user satisfaction, and the individual impact, distributed into (10) items, the rest model dimensions will be eliminated, since they are considered as much associated to Technology acceptance model (TAM).

The items will be inquired using a 5 point Likert scale, where (1) represents the highest level of disagreement, and (5) representing the highest level of agreement with the item. As an exploratory research, the variable will be estimated based on factor analysis results. Table (1) presents the questionnaire items to measure the ERP effectiveness

Table 1. ERP effectiveness

1	The Information and outputs I get from the ERP system are clear and accurate.
2	The ERP system provides me with up-to-date information.
3	The ERP system provides me with sufficient information in the reports that seem to be just about exactly what I need.
4	Most system needed functions are included in my organization's ERP system.
5	The ERP system processes transactions quickly.
6	I feel that the ERP system meets the information processing and reporting needs of the business.
7	Overall, I am satisfied with the ERP system.
8	The use of ERP system increases the quality of decision analysis.
9	The use of ERP system improves the personal productivity and performance.
10	The use of ERP system reduces the time to solve problems.

manner, also to change the delivery requirements of quantity with time limitations [36]'

For the purposes of this study, the agility supply chain was measured by the integrated views from [37] [38] to make it more comprehensive and fitted to the Jordanian environment. The items will be inquired using a 5 point Likert scale, with (1) representing the highest disagreement, and (5) representing totally agreement with the item. As an exploratory research, this variable will be estimated and expressed based on the factor analysis.

Table (2) presents the questionnaire items to measure the extent of agile supply chain implementation

Table 2. The extent of agile supply chain implementation

1	My firm has the ability to track and understand customer requirements by interfacing closely with the market.
2	My firm aims to produce in any volume (and not just the optimal capacity utilization volume) and deliver simultaneously to a wide variety of markets.
3	My firm provides customized products at short lead times (i.e. focuses on responsiveness).
4	My firm deploys significant stocks of parts to tide over unpredictable market requirements.
5	My firm reduces lead times to customer specifications and requirements.
6	My firm deploys excess/buffer capacity to ensure that raw material/components are available to manufacture the product according to market requirements.
7	My firm produces to modular designs, by using a limited number of basic components and processes that can be assembled into different products.
8	My firm's supply chain is able to respond to the changes in demand without overstock or lost sales.
9	My firm's supply chain is able to leverage the competencies of our partners (suppliers) to respond to market demand.
10	My firm's supply chain is capable of responding to real market demand.

4.2.3 The Firm Performance

As a result of the great growing competition and the urge for continuous funding sources, researchers laid tremendous efforts on studying the ways that will enhance the firms' performance.

Ref. [39] developed a measurement scale as an integrated view from three previously presented scales of the firm's performance, this scale comprises; the financial, the business, and the organization performance. And they brought higher attention to the financial performance indicators including; the profitability (implicitly measured by ratios of the return on investment (ROI), the return on sale, and the return on equity (ROE)), the growth of sales, and earnings per share.

For this study, as a sort of balancing, the business performance will be measured by the market shares, the quality of the products, the expansion (by designing new products), the marketing effectiveness and the value-added manufacturing. As well as, the organization performance will be measured by the product value, the customer loyalty and the market performance as higher relevant dimensions to the scope. Table (3) presents the questionnaire items

Table 3. Firm performance

1	After implementing the ERP system and agile supply chain, we realized growth of the firm's profit rate.
2	After implementing the ERP system and agile supply chain, we realized that the operating costs became down.
3	Implementing the ERP system and agile supply chain we realized enhanced the firm's overall competitive position.
4	Implementing the ERP system and agile supply chain helps to increase market share of products.
5	Implementing the ERP system and agile supply chain helps to increase product sales growth rate.
6	After implementing the ERP system and agile supply chain, we realized that the products increased the customer satisfaction.
7	After implementing the ERP system and agile supply chain our new products are much capable to meet the changing demands of customer requirements.
8	After implementing the ERP system and agile supply chain our new products are much capable to meet the needs of customers from different industries.

4.3 The Population and the Sample

The population of this study entails all manufacturing listed firms in Amman Stock Exchange (ASE), and the top retail firms operate in the Jordanian market. The manufacturing firms contain Pharmaceutical and Medical, Chemical, Paper and Cardboard, Printing and Packaging, Food and Beverages, Tobacco and Cigarettes, Mining and Extraction, Electrical, Textiles, Leather and Clothing, and finally Glass and Ceramic sectors.

The unit of analysis is at a firm level, the deployed sample is a purposive sample. Supply chain specialists including; production lines manager, procurements specialist or any employee of relevance to the duties of these position holders, besides to ERP specialist and senior management were elected as the respondents.

In order to guarantee that the nominated respondents are consistent with the purposes of this research, furthermore to disregard any factor that could cause an error that will affect the conclusions, the responder's firm to be nominated should fulfill the following conditions:

- 1) The manufacturing firm is listed in ASE as per the company guide 2017.
- 2) The selected firm must implement the agile supply chain approach.
- 3) The ERP system has passed the implementation stage.
- 4) The representative respondent must have the appropriate knowledge about the reflections of the variables of interest.
- 5) More than one response was accepted.

The consent of conducting an interview has been taken. Therefore, a total of (367) questionnaire were distributed, the population of the study constitutes of (77) firms.

4.4 The Pilot Sample

In order to ensure the content validity, a pilot sampling approach has been applied by implementing "Q-sort" method, we asked 30 expert managers about their feedback in terms of the instrument's suitability. Based on the provided judges, some items were either added or amended to obtain a higher level of coherence with the Jordanian environment in order to generalize the conclusions as an example of the developing countries.

4.5 The Data Collection Procedure

The data of this study were collected during the period of January 2018 and March 2018. Firstly, using "Google Forms" service, a web-based survey instrument was designed and mailed to the targeted firms with a set of supportive instructions. The researchers circulated Google forms generated, shareable link with (317) respondents over their personal emails after taking the essential approvals from the firms to contact the employees directly and confidentially. Secondly, to reach the rest of the targeted population who suffered from some limitations in terms of accepting online questionnaires, fifty paper-based questionnaires were distributed. The questionnaires were provided in both Arabic and English languages to enhance the level of understandability.

Afterward the data collection, the return rate was 44.79% (144 out of 367 questionnaires), and the present of valid questionnaires for the analysis was 77.08% of the returned ones. During the data collection, a frequently follow up procedure has been followed to ensure the clearance of the items, also to answer common inquiries.

5. The Results and Discussion

5.1 The Reliability Test

As a commonly used test, Cronbach alpha was tested for all variables of interest, with results exceeded the accepted rule of thumb of 0.70 [40] Hence, the reliability was great as per table (4). These results reinforce the researching discoveries and help a broader scientific community to admit the same hypothesis.

Table 4. Cronbach's Alpha Coefficients

1.	ERP effectiveness	10 Questions	0.940
2.	Agile Supply Chain	10 Questions	0.869
3.	Firm Performance	8 Questions	0.920

5.2 The Normality Test

Generally, the normality tests are executed to validate the applicability of results generalization from the sampled cases to the entire population, Moreover, in the situation of this study, the normality tests are one of the key assumptions that need to be deeply-rooted before going on the SEM analysis according to [41] [42].

The skewness and kurtosis tests were conducted for each item in the questionnaire and for the variables. The results confirmed that all items are normally distributed.

5.3 Descriptive Statistics of the Survey Sample

Table (5) presents the diversity in the targeted sectors from both manufacturing and retails industries. The majority of respondents came from Pharmaceutical and Medical Industry followed by the retail, on the other hand, the minorities came from Tobacco and paper industries. These percentages are consistent with the number of employees in the firms.

Around (% 41.44) of the firms are medium-size, and (% 44.15) of the firms are large- sized firms, which produces/imports and distributes more than 35 products. This is consistence with the theory and pieces of literature that stress on the fact that adopting of ERP system and agile supply chain methodology are not applied effectively is small sized-firms [37].

There is no considerable gap between the percentages of ERP software, which is developed by international or local software providers. Even though, the local ERP systems are criticized for the weak functionalities, limited features and absent of deep understanding of the added values in the key functionalities. Yet, these limitations and risks are accepted as a sort of cost-benefit equation, due to the high installation and supporting costs of the products provided by international firms according to many managers.

The respondents' information reflect that the majority of the sample is well experienced, well educated, working in senior managerial positions, and holding diverse set of professional certificates in

the related fields, which in its turn, means a high level of awareness and valuable supporting to the fruitful reflections of the ERP system adoption plans. This gives much more creditability to the study results and conclusions.

Finally, 69% of the sample shows the willingness to receive a copy of the study results to be provided and discussed with the authorization bodies to be as evidence to future ERP upgrade projects.

Table 5. General Descriptive Statistics for the Study Sample

			Freq.	percent
Firm Information				
The Sector Of The Firm	1.	Pharmaceutical and Medical Industries	20	18.06%
	2.	Paper and Cardboard Industries	6	05.40%
	3.	Food and Beverages Industries	10	09.00%
	4.	Mining and Extraction Industries	23	20.72%
	5.	Textiles Industries	2	01.80%
	6.	Glass and Ceramic Industries	5	04.50%
	7.	Chemical Industries	4	03.60%
	8.	Printing and Packaging Industries	5	04.50%
	9.	Tobacco and Cigarettes Industries	4	03.60%
	10.	Electrical Industries	7	06.30%
	11.	Leather and Clothing Industries	7	06.30%
	12.	Retail	18	%16.21
The Size of the Firm	1.	Small Sized Firm	16	%14.41
	2.	Medium Sized Firm	46	%41.44
	3.	Large Sized Firm	49	44.15%

The Range of Products Produced by the Firm	1.	1-5 products	23	20.73%
	2.	6-10 products	17	%15.31
	3.	11-20 products	14	12.61%
	4.	20-25 products	19	17.12%
	5.	Above 35 products	38	%34.23
The Provider of the ERP Software	1.	The ERP is provided by local firm	47	42.35%
	2.	The ERP is provided by international firm	64	57.65%
Respondents Information (Employees)				
The Years of experience	1.	0-3 years of experience	14	12.61%
	2.	4-7 years of experience	23	20.72%
	3.	8-12 years of experience	36	32.43%
	4.	Above 12 years of experience	38	34.23%
The position level	1.	Employee.	14	%12.61
	2.	First level management.	16	14.41%
	3.	Mid-level management.	40	36.03%
	4.	Senior level management.	38	34.24%
	5.	Other	3	2.71%
	1.	High School	3	2.70%

The Educational level	2.	Diploma	6	5.40%
	3.	BA	87	%78.47
	4.	Master	12	%10.81
	5.	PhD	2	%1.90
	6.	Other	1	%0.90
Category of certificate	1.	Certificate in Accounting	20	18.01%
	2.	Certificate in Auditing	1	%00.90
	3.	Certificate in Finance	4	3.60%

	4.	Certificate in IT	22	%19.81	
	5.	Certificate in Supply Chain	27	%24.32	
	6.	Other	6	5.40%	
	7.	N/A	31	%27.96	
	Do the respondents want to receive copy from the research results?	1.	Yes	69	62.2%
		2.	No.	42	37.8%
	Total Sample	111			

The Descriptive Statistics of the Study Variables

- 1- The mean value of the ERP (independent variable) was (4.05). The highest mean value over the items was (4.16) for the statement **"The use of ERP system increases the quality of decision analysis"**. Yet, the lowest arithmetic mean was (3.87) for the statement **"Implementing the ERP system and agile supply chain helps to increase market share of products"**. The mean values of all items reflect a high level of importance.
- 2- According to the agile supply chain (mediating variable), the mean value was (3.70). The highest mean value was (3.96) for the item **"My firm has the ability to track and understand customer requirements by interfacing closely with the market"**, however, the lowest mean was (3.29) for the item **"My firm deploys significant stocks of parts to tide over unpredictable market requirements"**.
- 3- The mean value for the firm performance was (3.80). The highest mean value was (3.99) for the item, **"Implementing the ERP system and agile supply chain helps to increase market share of products"**. However, the lowest mean was (3.65) for the item, **"Implementing the ERP system and agile supply chain helps to increase product sales growth rate"**.
- 4- The values of the stander deviation of all items and investigated variable were low and mirror a high level of homogeneity between the answers, which gives a higher credit to the results generalization.

5.4 The Exploratory Factor Analysis (EFA)

The EFA approach is adopted to decide the correlation among the dataset variables. It shapes structure of the factor by grouping the variables by the robust correlations. Usually, conducting the EFA formulates the variables that will be used for SEM. The EFA as well has a higher ability to discover any problematic variables before the confirmatory. EFA results summarized in table (6)

Table 6. EFA Results

	ERP	Agile Supply chain	Firm Performance
Kaiser-Meyer-Olkin (KMO) Test	.904 (Adequate)	.846 (Adequate)	.903 (Adequate)
Bartlett's Test of Sphericity			
Sig.	.000 (Sig. Pass)	.000 (Sig. Pass)	.000 (Sig. Pass)
Initial Eigenvalues	Factor 1 [6.523] >1	Factor 1 [4.687] >1	Factor 1 [5.139] >1
Chi-Square	.000 (Sig. Pass)	.000 (Sig. Pass)	.000 (Sig. Pass)
% of Variance	Factor 1 [65.234]	Factor 1 [46.874]	Factor 1 [5.139]
Factor loading	All factors loaded into one factor with factor loading >0.4		All factors loaded into one factor with factor loading >0.4

According to the results presented in the table (6), wholly EFA conditions have been satisfied. As an explanation, Bartlett's tests of Sphericity results are significant ($\alpha < 5\%$). The factor loadings were above 0.40 for all inquired items, the Eigenvalues (accountable for the most variance) are high and > 1. The Chi-Square results, which reflect how much that the sample data matches a population (as a fitting test), is also significant. Lastly, the KMO statistic values are high, which specifies appropriateness of factor analysis. Yet, all items with factor loading below 0.4 will be eliminated. The communalities are all fit to the rule.

5.5 The Confirmatory Factor Analysis (CFA)

The CFA confirms the shaped factor structure of a set of observed variables, and confirm the results of the factor loading. CFA authorize the hypothesis testing of the assumed relationships between the latent constructs and the observed variables. The chi-square test, the Comparative Fit Index (CFI) and Root Mean Square Error of Approximation (RMSEA) are common examples of relevant indicators in this frame [43].

Table 7. CFA Results

	ERP	Agile Supply Chain	The firm performance
Chi Square (CMIN)	91.514	78.625	64.874
Probability level (P)	.000	.000	.000
Degrees of freedom (df)	35	25	20
Chi Square / DF	2.615	3.145	3.2444
CFI	.928	.913	.919
NFI			.889

The fitting indices decide the model's adequacy. If the above-mentioned conditions have been fulfilled, then the relationships could be examined. According to the table (7) results, the below could be concluded:

- **The Relative/Normal chi-square (Discrepancy function):** Its value could be computed by dividing chi-square / degrees of freedom. The most benefit of using this index that it is not sensitive to the small sample size. The satisfactory values are < 5 [44].
- **The CFI:** Its satisfactory value is above (0.85) [45], and the obtained values are exceeding this level.
- **NFI:** its values falls in zero and one, for instance, when NFI values is 0.70 this means that the used model improves the fit level by 70% [46]. All values in the model add improvements.

Table 8. AMOS Relationships Results

	ERM on IAP	ERM on CGQ	IAP on CGQ
Chi Square (CMIN)	1356.86	987.530	580.921
Probability level (P)	0.000	.000	.000
Degrees of freedom (df)	593	433	188
Chi Square / DF	2.288	2.281	3.090
CFI	0.823	0.853	0.810
NFI	0.732	0.744	0.733
Hoelter Index (0.05)	77	82	64

It could be concluded from the results in the table (8) that all sig-value are significant (0.000) at ($\alpha \leq 0.05$). This infers that ERP effectiveness as an independent variable has a significant effect on the firm performance as the dependent variables. Also, the (Ch^2/DF) for all relations falls in the tolerable intervals, this reflects a good level of harmonization [44]. Similarly, the results NFI and the Hoelter Index are acceptable [47].

Aiming at confirming the indirect relationship between the ERP effectiveness and the firm performance with the existence of agile supply chain, the below conditions need to meet:

- 1) The significant value between the ERP effectiveness and the firm performance should turn out to be insignificant with the presence of agile supply chain (in the case of full Mediation), if it stills significant and decreased, this means a partial mediation) like the case of this paper.
- 2) The impact value of agile supply chain on firm performance should become significant.
- 3) The average variance extracted must be increased ([48]).

According to the table (8), the effect of the ERP effectiveness on firm performance is significant at (0.05). Also, it is obvious that agile supply chain has a significant effect on the firm performance at (0.05). Furthermore, the results reveal that effect of the ERP effectiveness on supply chain is significant at (0.05) as well. The effect values are (0.29, 0.43 and 0.81). Nevertheless, it's noticed that the effect value of the ERP effectiveness on the firm performance in the attendance of agile supply chain shrunk rather than in the case of its absence. This indicates that the internal audit performance plays the role of partial mediation.

5.6 The hypothesis testing

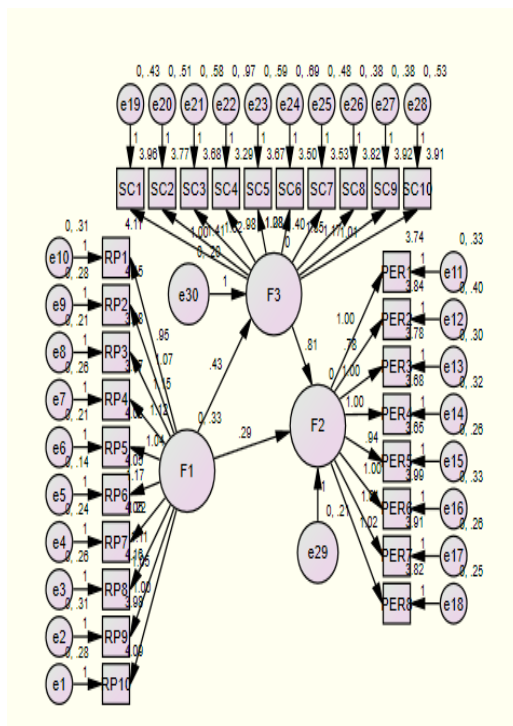


Figure 1. The mediating effect

6. Study conclusion and recommendation

In the light of the statistical analysis results, this research could shape the findings by proving the positive relationship between implementing an effective ERP system and reaching the supposed performance levels. The study revealed that the ERP solutions are widely implemented in the mid and large sized organizations, due to its contribution in making all sub systems and modules communicate effectively, allowing the access to timely, and accurate information, under the set of authorization levels. Therefore, the Firm performance boosted as a result of implementing an effective ERP system. On the other side the study indicated that the implementing the agile supply chain approach as a method that would help in responding successfully

to the customer and market demands, with no risk of having accumulated inventory on the stock. Moreover, the effect of ERP is better in the case of implementing the agility approach. In addition, there is a satisfactory levels of awareness about the significance of being engaged in costly and timely consuming projects to adopt and upgrade ERP systems. Finally, from the market experience, managers prefer to pay more for an international ERP vendors and solutions to gain its fruitful benefits, rather than save short term costs and being harmed from the limitations of the locally developed products.

Yet, this relation will be enhanced in the case that the adopted firm is implementing the agile supply chain methodology. The justification behind this relationship that the features and functionalities of ERP system deliver a diverse set of monitoring, controlling, managing and reporting features about the inventory management, the accuracy of such information will enhance both financial and non-financial performance, since this will help a prompt response to both dynamic market and customer needs. Furthermore, the adoption of agility supply chain, which based on the idea of having no inventory on the stock will enhance the exploiting of all information provided by ERP.

The study recommended to consult expertise with the best practices to implement the ERP solutions in parallel with agile supply chain, also the yet to coming research need to focus of such factors rather than ERP effectiveness, like; the source of ERP solutions, the tradeoff between cost and benefits the obstacles towards ERP adoption.

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