

## Supply Chain Cost Management in Companies : The value of UpstreamSuppliers

إدارة تكلفة سلسلة التوريد في الشركات: قيمة الموردين المنبع

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### Abstract :

*The aim of this study is to clarify the essence of the adoption of supply chain cost management and show the value of upstream suppliers. As the supply chain management has great importance to economic companies, so it is necessary to know costs. As well as the importance of the suppliers like an active and profitable element to Algerian companies. To illustrate that, we conducted a field study in a group of Algerian companies. We used the questionnaire as a tool to analyze the data we obtained using the SPSS program. This study found that supply chain cost management faces a great value of upstream suppliers.*

**Keywords :** Supply Chain Management, Supply Chain Cost, Upstream Suppliers, Relationships

**Jel Classification Codes :** M11, M31

### ملخص :

تهدف هذه الدراسة إلى توضيح جوهر اعتماد إدارة تكلفة سلسلة التوريد في الشركات الاقتصادية الجزائرية وإظهار قيمة موردي المنبع. نظرًا لأن إدارة سلسلة التوريد لها أهمية كبيرة للشركات الاقتصادية إذ تهتم بموردي المواد الأولية وخطوات الإنتاج إلى غاية توزيع المنتج إلى الزبائن، فمن الضروري معرفة التكاليف. فضلًا عن أهمية الموردين كعنصر فعال ومربح للشركات. لتوضيح ذلك أجرينا دراسة ميدانية في مجموعة من الشركات الجزائرية حيث قمنا باستخدام الاستبيان كأداة لتحليل البيانات التي حصلنا عليها وذلك باستعمال برنامج SPSS حيث توصلت هذه الدراسة إلى أن إدارة تكلفة سلسلة التوريد تتأثر بموردي المنبع بشكل يجعل التحكم الكبير في العلاقات مع الموردين يقلل من التكلفة.

كلمات مفتاحية: إدارة سلسلة التوريد، تكاليف سلسلة التوريد، الموردين، العلاقات

تصنيف JEL : M11, M31

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## INTRODUCTION

The developments taking place in all fields, especially the economic ones, must be kept up with the developed methods, means and approaches. That is why economic companies must keep pace with these developments by developing management methods that allow reaching the best results. The supply chain management approach is considered one of the entrances that received great attention from many companies due to its great importance in controlling a wide range of operations inside and outside the company. (Martin 2005) pointed out that the concept of supply chain management gives an advantage in terms of competition, meaning that companies compete by adopting the best supply chain.

Therefore, it can be said that the company should put great interest in the entrance of supply chain management as it is considered that department concerned with managing raw materials provided by suppliers and products and the flow of goods and data along the chain until the products reach their final destination.

As we see in the 21st century, there is strong tendency towards variables of supply chain management, Especially in light of the epidemics that appear from time to time (Malaria, SARS, N1H5, N1H1 and now COVID-19). There are many studies that dealt with supply chain management in light of the COVID-19 epidemic (Remko 2020, Iyengaret al. 2020, Khanet al. 2021). This lead us to rethink and confirm the which necessitated the creation of revolutionary and innovative design for the supplychain to keep pace with the course of things.

Not to mention that in these processes there is a set of costs that must be controlled. There are many studies that indicated the need to take into account the costs of the supply chain and give it great importance within the company (Schulze, Seuring et al. 2012, Shao 2017, Schmidt and Wagner 2019). In our contemporary business environment, it must be a transform of companies' traditional supply chain management approaches into supply chain management based on deep understanding of the upstream elements.

### • **Problematics:**

It has been increasingly the used of supply chain in the years ago, especially in these years in light of Covid-19. So it's so important in field of healthcare. The best upstream suppliers and the best control in supply chain costs leads the approach of supply chain management to expand its attention in various fields of companies such as aircraft manufacturing, pharmaceuticals, telecommunications, clothing, retailers, healthcare and even high-tech manufacturing.

As we see that the upstream suppliers as a variable are studied in many papers (Lyles, Flynn et al. 2008, Zhang, Guo et al. 2019 and Sköld, Fornstedt et al. 2018) where we confirm that the upstream suppliers are so important to study very well. Thus, we stress the importance of this variable, which calls for its study with complete care.

We indicate that there are studies about supply chain costs (Li et al. 2021, He et al. 2020) this confirm that supply chain cost as an important variable must studied very well and why not to be optimised.

So, this raises the following problem:

**What is the impact of the value of upstream suppliers on supply chain cost in companies?**

- **Importance of the study:**

The importance of this study is that it addresses one of the important topics is supply chain costs as it's mentioning in this studies (Li et al. 2021, He et al. 2020). There are many important variables especially when we talk about the suppliers. In this decade, the focus is increasing on the supplier variable as they are very influential in the internal processes of the companies (Govindan et al. 2020, Chen et al. 2020). This was confirmed as a factor that influences the company. So, the higher control of suppliers achieves the biggest profits in the raw material side. Supply chain management modernizes ways to deal with suppliers, attract them, land them and interact with them. So, we can highlight the relationship between supply chain management and upstream suppliers.

- **Previous studies:**

There are many studies published in this object, we can select that is related to our question, as the following:

The study of (Chen et al. 2020) named sustainable supplier selection for smart supply chain considering internal and external uncertainty: An integrated rough-fuzzy approach. They proposed a novel framework to identify smart-sustainable supply chain management practices as supplier selection criteria for a smart supply chain. Supplier selection consists of two parts: criteria weights determination and suppliers ranking. TOPSIS (Technique for Order of Preference by Similarity to Ideal Solution) has been identified as the most frequently used method for supplier ranking due to its superiority in quickly finding the best alternatives. Which are involved in the supplier selection process. Therefore, this study proposes a hybrid rough-fuzzy DEMATEL-TOPSIS approach to sustainable supplier selection for a smart supply chain. The proposed method combines the strength of the fuzzy set in handling internal uncertainty and the advantages of the rough set in manipulating external uncertainty. The effectiveness and accuracy of the proposed methodology are illustrated through its application in sustainable vehicle transmission supplier selection and through comparisons with other methods.

The study of (Sarkar et al. 2019) called Optimal production delivery policies for supplier and manufacturer in a constrained closed-loop supply chain for returnable transport packaging through metaheuristic approach. Which develops a multi-attribute closed-loop supply chain model for self-healing polymers based returnable transport packaging with single supplier, single manufacturer, and multi-retailers under budget and storage constraints. The experimental analysis is carried out to illustrate the practical implication of the proposed supply chain management model and numerical results are analyzed for their robustness. The experimental outcomes for the application of SSMD policy are compared with single-setup-single-delivery (SSSD) policy, which proves that the SSMD policy improves the total profit of the whole system by devising the optimal number of shipments. The sensitivity analysis is carried out to study the behavior of the key parameters involved in the proposed supply chain management for varying decision maker preferences and significant managerial insights are obtained.

(Lo, Zhang et al. 2018) study the impact of relationship quality and supplier development on green supply chain integration: A mediation and moderation analysis. This study aims to understand how relationship quality influences upstream Green Supply Chain Integration

through supplier development. The results show that supplier development fully mediates the relationship between top management support and upstream Green Supply Chain Integration. Additionally, this study found that cost is to significantly moderate the relationship between supplier development and upstream Green Supply Chain Integration.

(Adeinat and Ventura 2018) gave a study about an integrated pricing and supplier selection in a two-stage supply chain. This article presents an inventory replenishment model with supplier selection and pricing decisions in a two-stage supply chain consisting of a manufacturer stage followed by a retailer stage. In his model, he selected the best suppliers per order cycle. This leads to more control of costs.

(Zahran and Jaber 2017) did an investigation of a consignment stock and a traditional inventory policy in a three-level supply chain system with multiple-suppliers and multiple-buyers. this study focus on four coordination scenarios for a three-level supply chain system consisting of multiple suppliers, a vendor, and multiple buyers. The results showed that a combined coordination policy and paying post the due date return the highest system profit. The differences in the profits for the four scenarios were found to be insignificant under some conditions. This finding may give managers the flexibility to choose the one that is practical and serves its business better.

By presenting the previous studies it is clear to us that our study is characterized by the following:

- This study shows the importance of supply chain cost and its necessity for Algerian companies.
- This study is studying the relationships with suppliers and the need to consolidate them.
- This study highlights the impact of upstream suppliers on costs.

- **Hypothesis of the study:**

After determining the problem of the study, and noting some of previous studies, we can show the following hypothesis:

**Main hypothesis:** the higher value of upstream suppliers the lowest supply chain costs.

This main hypothesis can be divided as follows:

**Hypothesis 01:** the higher control of upstreamsuppliersflowthe lowest supply chain costs.

**Hypothesis 02:** the higher value of upstream suppliersselection the lowest supply chain costs.

**Hypothesis 03:** the higher value of upstream suppliersrelationships the lowest supply chain costs.

## **1. Supply Chain Management:**

Supply chain management concept came out in the 1950s. The first use was in the military field for a long time. Supply chain describes functions of the management of a set of activities. Supply chain management is often defined as “successive steps of production and distribution of a given product from the upstream to the downstream, so, from supplier supplier’s to customer customer’s” (Pimor and Fender 2008).Supply chain management has been studied extensively, for example, green supply chain, entrepreneurship or sustainability, even in the time of this pandemic.

Supply chain management is an approach to recognize and understand the great importance of suppliers and customers, which requires producers to concentrate on supplier suppliers and

customer customers. Therefore, it is important to know that supply chain management involves a long series of processes that producers must know, control and identify with great precision, because if they are carefully controlled and managed these processes then we can talk about a key factor in increasing competitiveness of economic institutions adopted such a kind of approach.

In order to understand supply chain management, the enterprise must identify and define supply chain processes that are centered around eight ones (Cooper, Lambert et al. 1997) as follows:

- Managing public relations with customers.
- Service management provided to customers.
- Demand management.
- Execution of customer orders.
- Management of manufacturing flows.
- Supplier Relationship Management (Croxtton, Garcia-Dastugue et al. 2001).
- Product development and marketing.
- Revenue management (Croxtton, Garcia-Dastugue et al. 2001).

✓ The 7 principles of supply chain management :

- 1- Segment customers based on the service needs of distinct groups and adapt the supply chain to serve these segments profitably.
- 2- Customize the logistics network to the service requirements and profitability of customer segments.
- 3- Listen to market signals and align demand planning according to across the supply chain, ensuring consistent forecasts and optimal resource allocation.
- 4- Differentiate product closer to the customer and speed conversion across the supply chain.
- 5- Manage sources of supply strategically to reduce the total cost of owning materials and services.
- 6- Develop a supply chain-wide technology strategy that supports multiple levels of decision making and gives a clear view of the flow of products, services, and information.
- 7- Adopt channel-spanning performance measures to gauge collective success in reaching the end-user effectively and efficiently.

## **2. Supply Chain Cost:**

Now, the competitive advantage is different for each company. There are advantages in costs, quality, price, delivery and after-sales services ... so companies have to take this into consideration, not to mention excellence in management and advanced fields such as the so-called supply chain management. Since competition is no longer between companies, but among supply chains.

There is an important topic that enables companies to enjoy great advantages, this topic called supply chain management. This topic integrates all activities associated with the flow of raw materials, information, and capital between the suppliers and the ultimate customer (Berger, Gerstenfeld et al. 2004). (Li et al. 2021) Optimised the configuration of food supply chains. There are so many companies have made great efforts to improve the efficiency of their supply chain activities, design and processes, e.g. manufacturing, purchasing, and logistics (Ellinger 2000). This requires an explicit understanding of supply chain management practices to survive in fully competitive markets by achieving sufficient profits (Childer house

and Towill 2003)(Tan, Lyman et al. 2002). Supply chain management should ultimately lead to enhanced organizational performance (Li, Ragu-Nathan et al. 2006).

The supplier selection decision a large number of both quantitative factors such as cost reduction potentials have to be considered.

(Panfilova et al.2020)indicates that the cost influences on key decisions of supply chain participants. All connected, related or linked costs in the supply chain of the company called supply chain costs(Pettersson and Segerstedt 2013). This leads the company to know more about those cost for example : types or classes of costs and combination of costs. There are different terms for the supply chain costs for example, manufacturing costs, therefore, there is a division of supply chain cost into five categories: Production cost, Transportation cost, Warehousing cost, Inventory carrying cost and Internalmaterial handling cost(Chen 1997). this division shows an examined costs which gave appropriate results for companies. Also, supply chain cost divided in sum of the farmer's price, total additional cost, total mark-up and total wastage(Sachan, Sahay et al. 2005). (Pettersson and Segerstedt 2013) chose other categories as follows, manufacturing cost, administration cost, warehouse cost, distribution cost, capital cost, and installation cost.

(Ketokivi et al.2020)considered that Transaction cost economics as a theory of supply chain efficiency. There is another study contain transaction cost perspective in light of distributed ledger technology in supplychains( Roeck et al.2020).

The conceptual framework for supply chain costing contain three dimensions: product, relationships and costs(Seuring 2002).The reduction of supply chain cost it's a tool of achieving a competitive advantage(Su and Lei 2008). There is an analysis and supply chain cost optimization in wood pellet(Visseret all.2020). The supply chain costs savings was reached when the companies combined creative pricing strategies with efficient supply chain management (Martin 2005).

In companies, there are multiple capabilities within the system, especially those related to analysis is customer types, market segments and distribution channels, as it is necessary to focus on those capabilities and raise them to the maximum extent possible, and there is a general ignorance of the true cost of servicing different customers, channels or market segments. (Christopher 1999). Therefore, we focus on dual channels which mean shopping choices and price savings to many customers(Dumrongsiri, Fan et al. 2008). (Girard, Korgaonkar et al. 2003)noted that consumers who are price conscious, convenience seeking, and relatively younger, are preferring the service received from direct channel.

(Hoole 2005)briefly mentioned that almost companies with more mature supply chain practices are reducing costs faster than their less mature peers and could achieving higher profit margins. The properly managed supply chain comprises reducing costs and deliver products fastly. (Souter 2000). (Martin 2005)said that the supply chain cost savings provide opportunities for increased profits. Improved information sharing and forecasting techniques can lead to total supply chain cost savings(Byrne and Heavey 2006).

(Martin 2005)noted that in anticipation of and preparation for continued downward pressure on price, it's obvious that companies must find a way to minimize costs in order to keep their profits. (Alnestig and Segerstedt 1996)noted that cost analysis was used as part of the analysis of customer profitability.

### 3. UpstreamSuppliers:

Suppliers have a major role in supply chain management. (Lyles, Flynn et al. 2008) highlights that supply chain management plays an important role in product recall problems. Product recalls are frequently connected to suppliers(Zhao, Li et al. 2013). The most important key in managing product recalls are product safety issues and identify supplier relationships and traceability(Marucheck, Greis et al. 2011). manufacturer ensure that suppliers have followed the procedures throughout the whole process from the origin to the point of sale by the capabilities of tracing (Lyles, Flynn et al. 2008).

supplier quality integration directly enhances competitive performance, and it must integrate internal resources and cooperating with suppliers(Zhang, Guo et al. 2019)

find both internal quality integration and supplier quality integration enhance product quality in one hand, in the other hand he found that internal quality integration enhances supplier quality integration (Huo, Zhao et al. 2013). There is a focus on supplier quality management (Lo and Yeung 2006). There is a conceptualization of supply chain quality management as internal quality practices and supplier participation and supplier selection(Lin, Chow et al. 2005). quality practices and supplier relations as common themes in supply chain quality management (Foster Jr 2008). supplier quality management improves quality performance (Lo, Yeung et al. 2007).

quality management practices, supplier participation and supplier selection are correlated with each other, and supplier participation is positively associated with organisational performance (Lin, Chow et al. 2005).(Chen et al. 2020)stated the need for sustainable supplier selection.

supplier qualification refers to the practices of verifying suppliers' capabilities for complying with contract specifications(Wan, Beil et al. 2012).

supplier involvement refers to the process that brings together one or more suppliers with a company's product design team in the product development process (Van Echtelt, Wynstra et al. 2008).

(Sköld, Fornstedt et al. 2018) point out to adopt innovations developed by upstream suppliers. Supply chain management research identify the role of buyer-supplier relationships for supply chain management strategies(Tan 2001). and there is a supplier development which leads to know any effort of a buying company to increase the capabilities of the supplier (Krause and Ellram 1997). (Rogers, Purdy et al. 2007)considered supplier development strategies as a major key of supplychain management.

There is a special study about evaluation of the strategy of regionalizing a supply chain(Chopra and Sodhi 2004). (Porter 1980)states supplier management in purchasing, to find mechanisms to off set or surmount these sources of suppliers' power and can be spread some purchasing among alternate suppliers in such a way as to improve the company's bargaining power. (Ruiz-Torres and Mahmoodi 2006)illustrates the optimization of the demand allocation across a set of suppliers by evaluating different costs associated with the supply network.

There is a study about price and quality of purchased parts and the reliability of deliveries as variables in the selection of suppliers and order allocation (Sawik 2011). The findings of (Sawik 2014)notedthat supplier reliabilityis a key determinant of supplier selection in the supply base.

(Ruiz-Torres, Mahmoodi et al. 2013) considered different demand points and different suppliers with different costs and reliability characteristics.

one of the important characteristics that applied to problem-solving in supply chain management is the arrangement of suppliers of products and services (Kumar and Kropp 2006).

(Martin 2005) indicates that “supply chain management is also the management of upstream and downstream relationships with suppliers and customers to deliver superior customer value at less cost to the supply chain as a whole” .

It's so important to say that providing access to resources could become as a part of supplier development programs, and will help to recognize the understanding of all processes must use in this programme, and this is an opportunity for those programs that include a range of activities undertaken by a company to improve supplier performance and capabilities (Krause, Handfield et al. 2007). Others researches point out some tools included in supplier development programs are: credit, loan guarantees, physical inputs, quality control, guaranteed prices, Transportation and prompt payments (Dries and Swinnen 2004, Dries, Gorton et al. 2014, Rodríguez, Giménez Thomsen et al. 2016). The manner of the growth of outsourcing has put concentration and an emphasis on supplier relationship management (Amaral 2004).

Sources decisions must be in the hand of a best manager because it's one of the most effective components of supply chain systems. The best manager know how choose the right suppliers and allocating the right demand between them can greatly reduce costs and associated risks. Thus, the development of emergency plans to deal with the supply chain has gained great attention (Trkman and McCormack 2009).

(Berger, Gerstenfeld et al. 2004) states that suppliers diversification would give the company opportunities to control and to reduce costs and not submit to a single supplier that may control the price as he wants and he can practice the tools of pressure and increase the risk to the supply chain. Therefore, the company must select the optimal number of suppliers in the supply chain to fulfill the demand, based on the cost of negotiating with each supplier.

#### **4. Empirical Study:**

##### **4.1. Population and sample of the study:**

As we see in Algerian country, there are many of companies active in various fields. So, we have chosen the population of the study consists of the companies active in the economic field. Then, the sample of the study was determined by the random stratified sample, 65 questionnaires were distributed to the companies in Msila, 56 were recovered, 45 were accepted, which represents the ratio of 69.23% of the total questionnaires.

##### **4.2. Study tool:**

Based on the relevant literature and what was presented in the theoretical side, we designed a questionnaire that corresponds to our research, as it is considered one of the tools of scientific research with high efficiency in reaching very positive results.

##### **4.3. Statistical Methods:**

We use the frequency distribution, percentages, the mean and the standard deviation, as methods to obtain general indicators about the characteristics of the study population and to describe the variables of the study as shown in the part of results and discussion.



**-Alpha Kronbach coefficient:**

We solidified our study by using Alpha Kronbach to see how valid and consistent questionnaire statements were among them to determine the validity of this study. We found that the total Alpha Kronbachis 88%. This means that we can use this data to answer the problem, analyze it and set accurate answers to it.

**-Coefficient of correlation:**

As we know the use of the correlation coefficient to find out the relevance of the paragraphs of the questionnaire among them in one hand, on the other hand, and to find the real variables of the study.

**5. Results and discussion.**

**5.1. Results of variable correlation:**

The results of variable correlation explained as follows:

➤ **dependent variable issupplychaincosts (SCC):**

The Table 1 shows that the correlation values statistically significant at the  $\alpha$  (0,01). Thus, the independent variable which is upstream suppliers flow has been achieved and it is confirmed.

**Table 1.** Results of correlation

	SCC1	SCC2	SCC3	SCC4	SCC5	SCC6
<b>SCC1</b>	1 45	,363* ,014 45	,294* ,050 45	,364* ,014 45	,304* ,042 45	,514** ,000 45
<b>SCC2</b>	,363* ,014 45	1 45	,308* ,040 45	,277 ,066 45	,366* ,014 45	,297* ,048 45
<b>SCC3</b>	,294* ,050 45	,308* ,040 45	1 45	,674** ,000 45	,535** ,000 45	,528** ,000 45
<b>SCC4</b>	,364* ,014 45	,277 ,066 45	,674** ,000 45	1 45	,764** ,000 45	,479** ,001 45
<b>SCC5</b>	,304* ,042 45	,366* ,014 45	,535** ,000 45	,764** ,000 45	1 45	,603** ,000 45
<b>SCC6</b>	,514** ,000 45	,297* ,048 45	,528** ,000 45	,479** ,001 45	,603** ,000 45	1 45

**Source:** Prepared by researchersbased on the SPSS.

➤ **Independent variable isupstreamsuppliers flow(USF):**

The Table 2 shows that the correlation values statistically significant at the  $\alpha$  (0,01). Thus, the independent variable which is upstream suppliers flow has been achieved and it is confirmed and \*\*means the correlation is significant at the 0.01 and \*means the correlation is significant at the 0.05 level.

**Table 2.**Results of correlation

	USF1	USF2	USF3	USF4	USF5
USF1	1 45	,420** ,004 45	,236 ,119 45	,017 ,914 45	,282 ,060 45
USF2	,420** ,004 45	1 45	,549** ,000 45	,411** ,005 45	,211 ,164 45
USF3	,236 ,119 45	,549** ,000 45	1 45	,376* ,011 45	,141 ,354 45
USF4	,017 ,914 45	,411** ,005 45	,376* ,011 45	1 45	,330* ,027 45
USF5	,282 ,060 45	,211 ,164 45	,141 ,354 45	,330* ,027 45	1 45

Source: Prepared by researchers based on the SPSS.

➤ **Independent variable isupstream suppliers selection (USS):**

The Table 3 shows that the correlation values of upstream suppliers selection are statistically significant at the  $\alpha$  (0,01). Which means that the upstream suppliers selection as an independent variable has been confirmed.

**Table 3.**Results of correlation

	USS1	USS2	USS3	USS4
USS1	1 45	,401** ,006 45	,256 ,090 45	,416** ,004 45
USS2	,401** ,006 45	1 45	,331* ,026 45	,312* ,037 45
USS3	,256 ,090 45	,331* ,026 45	1 45	,706** ,000 45
USS4	,416** ,004 45	,312* ,037 45	,706** ,000 45	1 45

Source: Prepared by researchers based on the SPSS.

➤ **Independent variable isupstream suppliers relationships (USR):**

The Table 4 shows that the correlation values of upstream suppliers relationships are statistically significant at the  $\alpha$  (0,01). Which means that the upstream suppliers relationships as an independent variable has been achieved.

**Table 4.**Results of correlation

	<b>USR1</b>	<b>USR2</b>	<b>USR3</b>	<b>USR4</b>
<b>USR1</b>	1	,507**	,553**	,738**
	45	,000	,000	,000
<b>USR2</b>	,507**	1	,426**	,516**
	,000	,000	,004	,000
<b>USR3</b>	,553**	,426**	1	,743**
	,000	,004	,000	,000
<b>USR4</b>	,738**	,516**	,743**	1
	,000	,000	,000	,000
	45	45	45	45

**Source:** Prepared by researchers based on the SPSS.

**5.2. Hypothesis test results:**

**First Hypothesis:**the higher control of upstream suppliers flow the lowest supply chain costs

Table 5 the mean values of the study sample for the questionnaire paragraphs were set in the first axis of the first hypothesis as follows:

**Table 5.**Results of Correlation, Mean and Standard Deviation

	<b>SCC</b>	<b>Mean</b>	<b>SD</b>
<b>USF1</b>	,096	3,6444	1,11101
	,530		
<b>USF2</b>	,450**	4,1556	,70568
	,002		
<b>USF3</b>	,475**	4,0222	,81153
	,001		
<b>USF4</b>	,607**	4,1111	,95874
	,000		
<b>USF5</b>	,520**	4,0889	,97286
	,000		
<b>SCC</b>	1		
	45		

**Source:** Prepared by researchers based on the SPSS.

We analyzed the results of paragraphs of upstream suppliers flow. The first paragraph with a mean of 3.64, and the second paragraph with a mean of 4.15, the third paragraph with a mean of 4.02, while the fourth paragraph was a mean of 4.11, the fifth paragraph with a mean 4.08. We note that the means are limited between 3.64 and 4.15 and with a standard deviation was between 0.70 and 1.11. The second paragraph was ranked first because of its importance to the respondents entitled with " choose the best suppliers of raw matertials". Table 5 also shows that the means the first hypothesis were higher and greater than the assumed average of  $(3).(1+2+3+4+5)/5=3$

The values of correlation in Table 5 were all statistically significant at the  $\alpha$  (0,05) except paragraph 1. Thus, the first hypothesis of " the higher control of upstream suppliers flow the lowest supply chain costs" has been achieved and valid.

**Table 6.**Results of Correlation

	USF	USS	USR	SCC
USF	1	,669**	,605**	,637**
	45	,000	,000	,000
USS	,669**	1	,788**	,811**
	,000	45	,000	,000
USR	,605**	,788**	1	,748**
	,000	,000	45	,000
SCC	,637**	,811**	,748**	1
	,000	,000	,000	45

**Source:** Prepared by researchers based on the SPSS.

We confirmed also that the correlation is significant at the 0.01 level as is shown in the Table6.

**Second Hypothesis:**the higher value of upstream suppliers selection the lowest supply chain costs

The Table 7 shows the mean of the paragraphs which related by the second hypothesis as follows:

We analyzed the results of upstream suppliers selection. The first meanis 4.15, the second with a mean of 4.26, the third with 4.11, the fourth with 4.91. We note that the means are limited between 3.91 and 4.26 and with a standard deviation were between 0.65 and 0.91, and that the second paragraph was ranked first because of its importance to the respondents entitled, " supplier capabilities in bringing raw materials". Table 7also shows that the means were higher than the average of 3.

The values of correlation were all statistically significant at the 0.01 level. Thus, the second hypothesis, " the higher value of upstream suppliers selection the lowest supply chain costs" has been achieved, which is correct, we confirmed also that the correlation is significant at

the 0.01 level. Indicating that the companies must take in account the best selection of suppliers which leads to the lowest costs.

**Table 7.**Results of Correlation, Mean and Standard Deviation

	SCC	Mean	SD
USS1	,428** ,003 45	4,1556	,70568
USS2	,412** ,005 45	4,2667	,65366
USS3	,743** ,000 45	4,1111	,91010
USS4	,768** ,000 45	3,9111	,90006
SCC	1 45		

**Source:** Prepared by researchers based on the SPSS.

**Third Hypothesis:** the higher value of upstream suppliers relationship the lowest supply chain costs

**Table 8.**Results of Correlation, Mean and Standard Deviation

	SCC	Mean	SD
USR1	,587** ,000 45	4,1778	1,07215
USR2	,543** ,000 45	4,0667	,93905
USR3	,662** ,000 45	3,9333	,86340
USR4	,700** ,000 45	4,3111	,84805
SCC	1 45		

**Source:** Prepared by researchers based on the SPSS.

The table 8 shows the mean of the paragraphs which related by the second hypothesis as follows:

We analyzed the results of upstream suppliers relationship. The first mean is 4.17, the second with a mean of 4.06, the third with 3.93, the fourth with 4.31. We note that the means are limited between 3.93 and 4.31 and with a standard deviation were between 0.84 and 1.07, and that the fourth paragraph was ranked first because of its importance to the respondents entitled, " Embrace innovations developed by upstream suppliers". Table 8 also shows that the means were higher than the average of 3.

The values of correlation were all statistically significant at the 0.01 level. Thus, the second hypothesis, " the higher value of upstream suppliers selection the lowest supply chain costs" has been achieved, which is correct, we confirmed also that the correlation is significant at the 0.01 level. Indicating that the companies must take in account the best selection of suppliers which leads to the lowest costs.

### **Conclusion:**

Supply chain management is one of the approaches that allow for the achievement of competitive advantage, as explained in the theoretical side. It is considered a management of activities, operations and flows from the upstream suppliers of raw materials to information, and then the production department comes to process and convert those flows from raw materials and information to a final or semi-finished product ready for distribution to customers.

The role of supply chain management does not end in processing raw materials only, but also goes beyond that to study the feedback and information flowing from customers in order to use it as a trump card in the near future and to ensure a stable competitive position among the economic companies in the raging competitive market.

Permeate those processes and flows a wide range of costs. Supply chain costs are very important in companies, which require a skilled business manager in dealing with them, because any slight error in calculation and distribution may lead to large costs. As we have indicated in the theoretical aspect, considering that handling supply chain costs is accurate and in good detail.

In our study, we limited ourselves to the suppliers' side because it is a main source in shaping the cost, as it provides raw materials at prices that differ according to the different companies that deals with it. The higher the companies deals with a supplier, the lower the price will be than other companies. The flows of raw materials on the part of suppliers are followed by flows of information that may be dangerous to the stock of the institution and which are guaranteed by the supplier. Therefore, it is necessary to choose the best suppliers of raw materials and which we confirmed as a paragraph in the first place in terms of interest among the respondents and supplier capabilities in bringing in raw materials which we agreed upon as a paragraph in the first place in terms of interest among the respondents and embrace innovations developed by upstream suppliers which was considered as the first paragraph in terms of interest among the respondents.

In this study we confirm that supply chain cost as a variable is importance to study. There are many important variables especially when we talk about the suppliers. In this decade, the focus is increasing on the supplier variable as they are very influential in the internal processes of the companies. This was confirmed as a factor that influences the company. so, the higher

control of suppliers achieve the biggest profits in the raw material side. Supply chain management modernizes ways to deal with suppliers, attract them, land them and interact with them. So, we can highlight the relationship between supply chain management and upstream suppliers.

We can conclude that the value of suppliers includes many things that lead to reduce the costs of the supply chain, which is to ensure access to raw materials at the agreed time and place and to ensure the permanent flow of raw materials even in cases of interruption of these raw materials, which allows the company not to incur losses and to ensure the availability of materials initial stock in order to keep working permanently.

It is possible to suggest opening dialogue with suppliers and conducting serious negotiations with them to reach the best agreement that allows reducing the costs of raw materials, ensuring information flows, and maintaining the confidentiality of information.

The expected perception is that in the near future there will be major developments in the administrative orientations of the Algerian economic companies, Which must place a big bet that allows it to adopt modern administrative approaches, especially when we talk about supply chain management and the accompanying variables, and we must delve into its understanding, leading to the actual adoption of managing supply chain costs, taking into account the value that suppliers will provide in this regard.

As prospects for this study, we can do intensive research on the importance of suppliers, their movements, costs and supplies of raw materials, the quality they choose, and the costs that can be negotiated with them, and we can also talk about the possibility of consulting them about the most important markets from which raw materials are obtained in terms of competitive advantage in price, quality and appropriate packaging. And the delivery is on time, and agreements and alliances may be reached with them that are established by short or long-term contracts and even foresight studies are carried out with their presence and involvement, we can also say that all information that benefits the institution is obtained at the daily and even strategic level.

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*Appendices*

**The questionnaire:**

Phrases	Strongly agree	agree	neutral	do not agree	Strongly Disagree
<b>upstream suppliers flow : USF</b>					
flow of raw materials in time					
choose the best suppliers of raw materials					
information of flow of raw materials					
flow of raw materials in place					
select the lowest cost from suppliers					
<b>upstream supplier selection : USS</b>					
supplier participation in decision					
Supplier capabilities in bringing in raw materials					
find mechanisms to offset sources of suppliers' power					
find mechanisms to surmount sources of suppliers' power					
<b>upstream supplier relationships : USR</b>					
Ensure the availability of raw materials permanently					
Complying with contract specifications					
Using suppliers from the production department to describe products					
Embrace innovations developed by upstream suppliers					
<b>Supply Chain Costs : SCC</b>					
your company divides the cost of supply chain.					
your company determines cost taking in accounts suppliers					
your company determines cost taking in account customers					
your company control supply chain costs					
Your company reduce supply chain costs					
Your company know how to deal with supply chain costs.					