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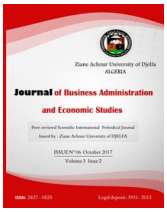

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The role of green purchasing of raw materials in achieving competitive advantage. A field study of some iron and steel factories in Algeria

دور الشراء الأخضر للمواد الأولية في تحقيق الميزة التنافسية

- دراسة ميدانية لبعض مصانع الحديد والصلب في الجزائر -

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Abstract

Modern business organizations seek to protect the environment without touching the economic aspect of their activity in order to ensure their viability, so the stakeholders have tended to adopt the concept of green purchasing, which contributes in reducing the environmental impact at the source instead of treating it at the end of the funnel, and it also contributes in reducing costs and raising the product quality, thus contributing to a competitive advantage.

A field study that was conducted on some new and steel factories in Algeria showed that the latter is undertaking the green purchasing process. When purchasing raw materials, they choose sources that believe in the need to protect the environment and replace the hazardous materials with less dangerous ones, as well as use reusable or recyclable materials. Although the study showed that these factories managed to achieve a competitive advantage, the green purchasing process had little effect on achieving this advantage.

Keywords

Green purchasing, environmental protection, competitive advantage

Codes de Classification JEL: Q56 , M 15

الملخص

تسعى منظمات الأعمال الحديثة إلى حماية البيئة دون المساس بالجانب الاقتصادي لنشاطها وذلك لضمان قدرتها على الاستمرار، لذا اتجه أصحاب المصلحة إلى تبني مفهوم الشراء الأخضر والذي يساهم في الحد من الأثر البيئي عند المصدر بدلا من معالجته في نهاية الأنبوب، كما أنه يساهم في تخفيض التكاليف والرفع من جودة المنتجات، مما يساهم في تحقيق ميزة تنافسية.

لقد أظهرت الدراسة الميدانية التي تم إجراؤها على بعض مصانع الجديد والصلب في الجزائر أن هذه الأخيرة تقوم بعملية الشراء الأخضر، فعند شراء مواد أولية تختار مصادر تؤمن بضرورة حماية البيئة وتستبدل المواد الخطيرة بتلك الأقل خطورة كما أنها تستعملالمواد القابلة لإعادة الاستخدام أو التدوير. على الرغم من أن الدراسة أظهرت أن هذه المصانع تمكنت من تحقيق ميزة تنافسية، إلا أن لعملية الشراء الأخضر أثر ضعيف على تحقيق هذه الميزة.

الكلمات المفتاحية

الشراء الأخضر، حماية البيئة، الميزة التنافسية.

تصنيف JEL: Q56 ؛ M15

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I.INTRODUCTION:

The purchasing process acquires the largest percentage of the total expenses of the institution, especially in large institutions, which makes it no less important than other functions such as production and marketing, and considering the environment has become among the priorities of the industrial enterprise in light of sustainable development, it is necessary to direct it towards making its activities more environmentally friendly. Raw materials are the basis of any industrial activity of different nature, and in order to make the institution's products more respectful of the environment and its resources, these materials must be carefully chosen through the green purchase process.

The current environment of the institution is characterized by intense competition in light of the openness of markets and the increasing number of competitors, and because the concern for the natural environment and its resources has become one of the areas of competition, the institution must pay attention to it and makes it a competitive advantage.

The green purchase of raw materials is an imperative that the institution must follow, especially in light of the laws and legislations that direct institutions towards taking into account the environment during all stages of their activities, and in light of the general orientation of the institutions towards including the environment within their strategy, the features of the problem appears that can be formulated as following:

Does the green purchasing of raw materials contribute in achieving the competitive advantage of some iron and steel factories in Algeria?

-To answer this problem , the following hypothesis can be proposed:

-The optimal selection of the raw materials that involve the production process contributes in achieving the competitive advantage of the factories under study.

This study sheds light on an important issue related to the industrial institution and its obligations towards the environment that emerge through the green purchasing of raw materials. It also aims to highlight the gains that the enterprise can collect and that support its competitiveness.

To study this topic, a descriptive and analytical approach was used, by which two studies were conducted, the first is theoretical and the second is practical, in the theoretical part of the study we relied on library sources in order to describe the concepts related to the phenomenon studied, analyze some of them and extract the most important results. In the practical study, data and information were collected from Its first sources in the practical field of the studied institutions through designing a questionnaire that included the main aspects of the research center in addition to personal interviews with some responsibles .

II. Basics about green purchasing of raw materials:

The concept of green purchasing appeared since 1970, when institutions with their various activities began to pay attention to the issue of recycling materials to be used again in various production and consumption processes. This concept can achieve many advantages such as reducing costs, limited energy consumption, and a limited negative impact on the environment.

1.Definition of green purchasing**:**

Purchasing can be defined as the process of obtaining suitable materials or products in the appropriate quantity from the appropriate source and supplying them at the appropriate time and place at the appropriate price (Elbakri.Tamer, 2012). Through this definition, we have the elements that must be focused on when purchasing, represented in the type of materials, the appropriate quantity that the institution needs, the source of these materials, i.e. confirming that the chosen resource is the most appropriate, the purchase time is linked with the needs of the institution, the right place, and the appropriate price, which is Within the financial capabilities of the institution and does not exceed the allocations of the purchasing budget.

If the purchase is determined by the six latter factors, then green purchasing gives it a new factor, which is the environment, therefore the green purchasing is the process that introduces environmental considerations to all factors associated with the purchasing process by setting environmental conditions that must be available in these factors.

The concept of green purchasing refers to the purchase of materials or products that do not have environmental damage or have a lower level of damage during their use in production, or their use, and even after their disposal.

2**. The importance of green purchasing**:

The importance of green purchasing is highlighted by the many gains that it contributes to achieving, including (Elbakri.Tamer, 2012):

Environmental gains: The focus is always on the fact that purchasing decisions are related to not having negative impacts on the environment during the use of the purchased materials for manufacturing or consumption purposes, and even after their final disposal. This is achieved by reducing energy consumption, various natural resources, and waste.

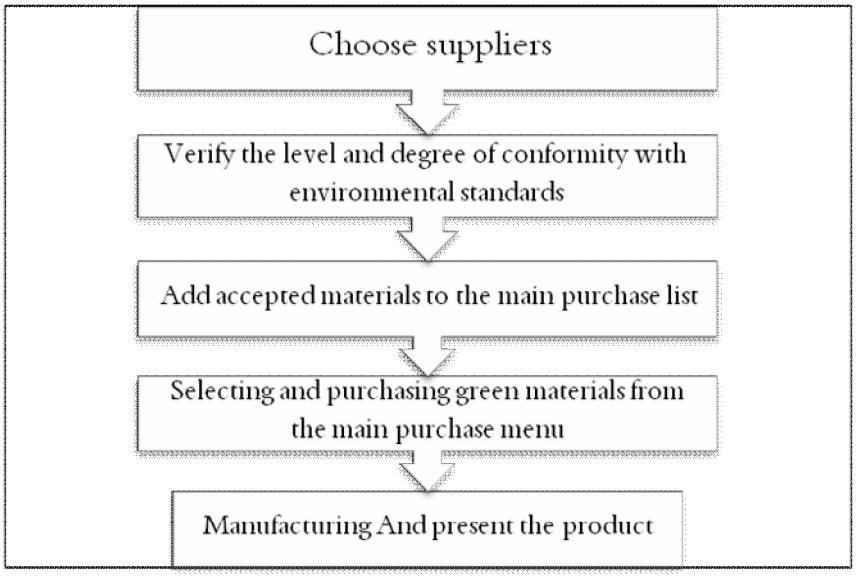
Reducing total costs: Considering that the purchase is done with the markets and suppliers, it contributes to a large extent to the volume of the total costs, and if the process of purchasing materials is done with a high economic efficiency, this will be reflected in the cost of production as a whole and thus on the final price of the products, so green purchasing can achieve A competitive advantage for the institution, in addition to the fact that the materials are less harmful to the environment.

The impact on the market movement: This effect is particularly evident by government institutions whose purchases represent a large proportion of the volume of purchase exchange in the local market, so the commitment of these institutions to the terms of green purchase will enable them to have a positive impact on the market movement to deal with the foundations and rules of green purchasing, and this pushes suppliers to abide by the conditions it imposes on them.

3**. The basic steps for green purchasing**

The purchasing function is responsible for providing raw materials, semi-manufactured and manufactured materials, and all materials related to the production process, equipment, machinery, and all the materials needed to practice its activity. Among the basic steps that enterprises take to establish a green purchase are the following (Kanemaru, 2012):

Figure N. (01): A general model for the green purchasing of productive inputs



Source: www.ricoh.com/environment/guideline 07/08/2017

Through the figure, it is clearly that the green purchasingprocess starts from choosing the appropriate suppliers by checking their environmental management systems, studying and examining the materials provided by the supplier and not using the dangerous and prohibited ones, along with studying and determining the relationship between the various productive inputs. To ensure that the extent of the purchases conform to the environmental specifications, followed by other stages until the final product that is put on the market and its follow-up in order to carry out a feedback.

III. The concept of competitive advantage

Business organizations with its different activities seek to remain in the market and continue in their field of activity, but they face intense competition that threatens this continuation, so it is obliged to have a competitive advantage that expresses their uniqueness from other organizations in the same sector, so it can be said that the organization's possession of a competitive advantage means Its ability to face environment variables in the market and its careful examination of the industry environment and thus its ability to face others, which increases its chances of survival and continuity.(Marie, 2008)

1. Definition of competitive advantage:

The concept of competitive advantage occupied an important place in the field of business economics. As business organizations are active in an environment characterized by rapid change, they need this strategic element that provides them with a fundamental opportunity to achieve continuous profitability compared with their competitors.

Kotler defines competitive advantage as the ability of the organization to perform in one or more ways that it is difficult for a competitor to do it now or in the future. (philip, 1997)

There are those who see that the competitive advantage appears in the ability of the institution to provide goods or services with lower cost, or products that are distinct from its counterparts in the markets, with the ability of the institution to continue to maintain this advantage (Abidi, 2000). It is also a characteristic or group of comparative characteristics that is unique to the organization and can keep it for a relatively long period due to the difficulty of simulating it , or that achieves during that period the benefit for it and enables it to outperform on competitors in terms of services or goods that provides to customers (Zoghbi, 2005).

2. Characteristics of the competitive advantage: From the above, it can be said that the competitive advantage is characterized by several characteristics, the most important are:

-To be continuous and sustainable, meaning that the organization must achieve leadership in the long and short term together.

- The competitive advantages are relatively, comparable with the competitors or in the different periods of time, and this characteristic makes understanding the advantages in an absolute framework difficult to achieve.

-To be renewable according to the external environment from one hand and the internal capabilities of the institution and its capacities on the other hand.

- To be flexible in the sense that competitive advantages can be replaced by others easily and conveniently regarding the changes that happened in the external environment or the development of resources and the capabilities of the institution from other hand.

- The use of these competitive advantages be commensurate with the objectives and results that the institution wants to achieve in the short and long term.

3. **Dimensions of the competitive advantage in the economic institution** :

The competitiveness of an economic institution depends on a set of dimensions that must be taken into consideration in order to improve the competitive position as well as the possibility of being and continuing in the market, these dimensions are as follows:

- **Cost**: meaning the ability of the institution to implement at the lowest costs compared with the competitors, and that is through improving productivity and efficiency, avoiding waste of resources and tight control over costs, and the institution that is based on cost to achieve a competitive advantage is specialized by its low capital, strength of its work and cost of its operations compared with competitors in the market, and as a result of the lower cost of that institution, it becomes possible to reduce product prices and increase profit margin (Houria, 2007).

Quality: Quality is represented in the set of product specializeddefined in design and function, and we find aesthetics aimed at persuading the customer, urging him to buy repetitively, and the institution that takesfrom the quality a competitive precedence insisted to provide a special level of quality higher than the level provided by competitors even if It took a high cost (Mostapha, 1999).

Flexibility: This concept requires the ability to cope with changes in the needs and desires of customers by designing aspects related to the characteristics of the product from one hand, and accompanies with the volume of demand on the other hand, as well as the ability to respond to changes in productivity and product mix, as flexibility now has become one of the decisive competitive advantages , After the production became according to the customer's demand, it is done through the ability to adapt to the unique situations of the customer and the changing designs

of the product, which requires flexibility in responding to the needs of the customer and changes in the design. On this basis, it can be said that the flexibility which discriminate on it includes two important aspects of the production system (Ahmed, 2006):

Flexibility of size: It means the ability to adapt to the size of demand and its changes by controlling production by accelerating or reducing its rates to face that.

Flexibility of mix product : This type of flexibility is related to the ability of the mix product to keep pace with the needs and desires of customers, satisfy and adapt to fluctuations in them through product designs and its technical specifications.

Time: After the increasing importance of time to the customer, the competition based on time increases between institutions as well, especially when dealing with institutions that rely on the principle of manufacture according to demand, as many institutions seek to expand their base with customers by focusing on the time required to deliver the commodity or service to the customer. .

Innovation: The innovation advantage comes through exploring new opportunities in the external environment, monitoring competitors' business, providing services or using new methods, and the state of innovation reflects the nature of the new technological changes necessary to full the market need and thus achieve the competitive advantage of the institution, and accordingly Porter attributed the creation of value To direction of the institution towards innovation and renovation in the areas of production, distribution, or marketing.

IIII. Green purchasing of raw materials as a tool to achieve the competitive advantage of some iron and steel factories in Algeria:

After dealing with the topic in the theoretical section and by referring to some of the related literature and to give a comprehensive picture about this topic, its variables and its vocabulary, and after learning about the green purchase of raw materials as well as the competitive advantage in its various dimensions, we will, through this element, review the methodological framework of the study in order to present various steps and methodological procedures We have relied on it to address the applied aspect or field study in some iron and steel factories in Algeria and work to show the role of green purchasing of raw materials in achieving competitive advantage.

Also we will shed light on the presentation and analysis of the questionnaire parts with a review of the most important results that have been reached, and a set of recommendations that can be guided by the administration of the institutions under study, which can be circulated to the rest of the sector institutions.

1. Methodological framework of the study:

Methodological of the study: In our study of the issue of the role of green purchasing of raw materials in improving the competitive advantage in the industrial institution , we adopted the analytical descriptive approach that is based on collecting data and trying to interpret it and summarize the present facts related to the nature of the phenomenon, in order to know the effect of various factors on creating the phenomenon under study and this With the aim of drawing conclusions and knowing how to control them and adjust these factors.

We have also relied in our study on some statistical tools, mainly represented in percentages and some statistical tests that are considered a rule through which we can show the relation and the

process of correlation between the study variables that we could only measure through translating them into a quantitative formula that can be measured and then accessing the results with credibility.
.

Population and Sample: The target population in this study are the executives, managers and heads of units in the factories under study. This population consists of 175 individuals from different positions in the factories under study, and this population has been specifically targeted instead of selecting all factory workers, since our study revolves around green purchasing of raw materials and its competitive advantage, and this group is more informed than others of the factory's strategy towards the natural environment. And competitive environment helping to get more accurate answers. A simple random sample of 60 individuals was selected from the study population, and this is because it was not possible to conduct it on all members of the research population and the sample represented 34% of the study population.

Data collection tools:The questionnaire was used as an important tool for collecting data and information related to the study variables in its practical part, as its parts were designed and constructed based on the study's objectives and questions. The validity and reliability of the questionnaire was also verified, using the necessary methods.

2. Presentation and analysis of data of the green purchasing axis for raw materials:

This element is devoted to presenting and analyzing the responses of the sample members related to considering the environmental aspects when purchasing raw materials in the factories under study. Their answers was obvious in the following table:**ron and steel factories in Algeria**

Table Number (01): the results of analysing the element that considering the environmental aspects when choosing raw materials which used in the factories under study

Decision	Indication level	Value "t"	Normative deviation	arithmetic	Expressions	Number of the sentence
Agree	0,00	11,65	0,71	4,08	The administration of the institution seeks to buy raw materials from sources that believe in the necessity of protecting the environment	01
Agree	0,00	9,10	0,82	3,96	Dangerous substances are replaced with those that are less dangerous as possible	02
Agree	0,00	7,44	0,86	3,83	The administration of the institution chooses the raw materials that are reusable or recyclable	03

Agree	0,00	9,67	0,94	4,18	When selecting raw materials, the degree of their various impacts on the environment is considering	04
Agree	0,00	8,48	0,71	3,78	The administration of the institution is willing to pay additional sums of money in certain rates in order to obtain raw materials that are less damaging to the environment and of adequate quality	05
Strongagree	0,00	16,06	0,69	4,45	The materials are used more efficiently with the aim of reducing waste, thus reducing costs	06
Strong Agree	0,00	22,28	0,59	4,70	The appropriate inventory administration techniques are followed for each raw material according to its nature	07
Agree	0,00	15,34	0,57	4,17	**Rawmaterials**	

Source: Prepared by the two researchers depending on the answers of the sample members and the outputs of spss

Through the table, we notice that the total arithmetic mean value of the green purchase component for raw materials was 4.14, and thus it falls into the fourth category according to Likert's fivefold scale in the fields 4.20, 3,40, indicating a high degree of approval, while the standard deviation It was estimated by 0.57, which is less than 1, which indicates the presence of homogeneity in the responses of the sample members.

This is confirmed by the computed value of " t" estimated at 15.34, which is greater than the tabular value of "t", which is 2, which is a function of the 60 degree of freedom with a significance level of 0.00 which is less than and the error level 0.05.

From the previous results, it is clear that the factory management is moving towards choosing raw materials compatible with the environment, and this approach is not necessarily a voluntary matter. Algerian laws and legislation were clear and explicit in this regard. The legal means and mechanisms forced the institution to choose inputs carefully from raw materials in order to avoid

those that May harm humans and the environment. Every institution wants to engage in a specific activity that could have a potential impact on the environment must obtain a license to exploit the classified institutions, and as mentioned previously, this license requires the fulfillment of several conditions, including an impact study and a summary of the impact, and it is one of the prior technical studies and evaluation of projects and institution that have negative effects. Directly or indirectly on the environment, as it aims to reduce this impact, including the impact of the raw materials used.

Through the previous analysis, it becomes clear that the sample members agree to a large degree that environmental aspects should taken into account when selecting the raw materials that enter the production process in the factories under study.

3. **Presentation and analysis of respondents ’answers about the dimensions of competitive advantage**

In order to determine the competitive advantage in the factories under study through its various dimensions, the total arithmetic average of the axis of competitive advantage was calculated based on its dimensions, and to reach a more accurate analysis, the value of "t" was used, which is shown in the following table:

Indicationlevel	**Level "t"**	**Normativedeviation**	**Arithmetic**	**Dimensions**
0,00	29,84	0,31	4,20	**Cost**
0,00	25,10	0,42	4,37	**Flexibility**
0,00	27,88	0,33	4,21	**Quality**
0,00	24,65	0,42	4,35	**Innovation**
0,00	8,61	0,63	3,70	**Time**
0,00	30,42	0,29	4,16	**Comparative advantage**

Source: Prepared by the two researchers, depending on the answers of the sample members and the outputs of spss

We notice through the table that the value of the arithmetic averages of the axis of competitive advantage ranged between 3.70 as a minimum and 4.37 as a maximum, with standard deviations ranging between 0.31 and 0.63, which is less than 1, which indicates the presence of homogeneity in the answers of the sample members.

This is confirmed by the calculated value of "t", which ranged from 8.61 to 29.84, which is greater than the tabular value of " t", which was 2, which is a function of 60 degrees of freedom with a significance level of 0.00 which is less than the 0.05 error level.

Through the arithmetic average of the axis of competitive advantage of 4.16, which thus falls into the fourth category according to Likert's fivefold scale in the fields 4,20,3,40□, indicating that the sample individuals are heading towards a high degree of approval that the factories under study

have a competitive advantage. The standard deviation was 0.29, which is less than 1, indicating the presence of homogeneity in the answers of the sample members.

This is confirmed by the computed value of "t", estimated at 30.42, which is greater than the tabular value of "t", which reached a value of 2, which is a function of 60 degrees of freedom with a significance level of 0.00 which is less than the 0.05 level of error.

Through the previous analysis, it is clear that the sample members agree to a large degree that the factories under study have a competitive advantage.

4**. Main hypothesis test**:

The main hypothesis states that the optimal choice of raw materials that enter into the production process contributes to achieving the competitive advantage of the factories under study

Table Number. (08): The results of the regression coefficient test for the effect of green purchasing of primary resources on the competitive advantage

Decision	The coefficient of determination "R2"	Test	Test Indication level	Test Level "T"	Test Indication level	Test Level "F"	The regression neutralisation Standard Error	The regression neutralisation Levels "B"	Variable
contributes in a weak degree	0,131	0,371	0,004	3,038	0,004	9,230	0,063	0,131	The green purchasing of raw materials

Source: Prepared by the two researchers, depending on the answers of the sample members and the outputs of spss

We notice through the table that the value of "F" is estimated at 9.23, which is a function of the significance level of 0.004. This confirms the existence of statistical significance for the effect of the independent variable (selection of raw materials) on the dependent variable (competitive advantage) of the factories under study.

The calculated value of “t” was 03.03, which is greater than the tabular "t", whose value is 2. It is a signified with a significance level of 0.004, which is indicated by the value of the coefficient “B”, which means that the change in the value of the independent variable (raw materials) by one unit is offset by a change of 0 19, in the dependent variable (competitive advantage), and this independent variable (raw materials) is explained by the coefficient of determination (R2) estimated at 0.137 of the variance in the dependent variable (competitive advantage), meaning that 13.7% of the changes in the level of competitive advantage are caused by changes At the level of choosing raw materials which is appropriate environmentally

The selection of these factories to sources that ensure environmental protection, as well as use less dangerous materials, have avoided exposure to legal accountability and the financial penalties imposed by the Algerian legislator in this regard, and thus lower costs and better reputation. It was also revealed through the interview questions that the raw materials used are of high quality, which

guarantees the quality of the product. So it can be said that the optimal selection of raw materials that enter the production process contributes positively and weakly to achieving the competitive advantage of factories from the viewpoint of the respondents.

V.CONCLUSION:

The significant and noticeable increase in the importance of environmental issues and aware the companies that the environmental dimension if included in their strategy, will express a competitive advantage, the expansion occurring in the green products market, and increase the consumer environmental awareness, in addition to other factors that made green purchasing a link between environmental goals and final outputs.

The inputs of the production process is an important factor in determining the quality and fineness of products. Therefore, it can be said that the first and basic step in achieving a competitive advantage in an environment concerned with environmental issues starts from studying the raw materials used in the production of the final product, and determining the appropriate materials for use from an environmental side.

Results of the study :

Based on this study, the following results were reached in the theoretical side:

- The purchasing process of raw materials is the most important stages in the production process because it expresses the product in its initial form i.e. before the conversion process, so attention must be paid to the fineness and quality of these materials;

- In order to obtain green products, attention must be given to the production stages, starting from the stage of design and purchase until the final disposal after use.

Green purchasing of raw materials contributes to making the products more compatible with the environment, and thus giving green products, which contributes to improving the institution's image in front of the stakeholders.

On the practical side, the following points was reached:

- The consent of the sample members to a large extent that environmental aspects should taken into account when selecting the raw materials that are included in the production process in the factories under study.

- The consent of the sample members to a large degree that the factories under study have a competitive advantage.

- The optimal selection of the raw materials that enter the production process contribute positively and with a weak degree in achieving the competitive advantage of the factories according to the respondents' views.

VI. Margins and Referrals: .

1- Zoghbi, Hassan, Ali. (2005).Strategic Information Systems:A Strategic Introduction,Dar Wael, Jordan, p138.

2- Hamd. Said. Mostapha. (1999). Product and Process Management - in Services and Industry.Egyptian library of Anglo.el_kahira.4th edition.p 543.

3- Elbakri.Tamer.Enrichment for .Previous Studies.Strategies Case.Green Marketing .(2012) .Publishing and DistributionAmman.

4- Elbakri. Tamer. Previous reference. P 324.

5- Kenichi. kanemaru .(2012).Green purchasing standards, kenichi kanemaru , corporate senior vice president purchasing control centre,production business group executive office,Ricoh company.p 05.

6- Kotler.Philip.(1997).Marketing Analysis,planing implemention and control,parentis_hall.Newdelhi.p 78.

7- Abidi, Ali, Ahmad, Hijazi.(2000).Logistic as an alternative to comparative advantage, Dar Elmaarif Iskandaria. P 77.

8- Taher, Mansour, Mohsin, Elgharibi. Wael, Mohammed, Sobhi, Idris.(2009).Strategic Wael Publishing House .management an integrated perspective.4th edition. Jordan.P 309.

9- Houria, Belatrach.(2007).The Reality of Strategic Management in Small and Medium Enterprises. Unpublished Master's dissertation. University of Ouargla.P 55_56.

10- Ahmed, Bellali..(2006)The competitive advantage of the economic institution between its own resources and its external structure.A Doctorat's dissertation. University of Algeria. P 14.