


**THE ROLE OF LEAN ACCOUNTING METHODS IN COST REDUCTION: EXPLORATORY STUDY FOR A SAMPLE OF INDUSTRIAL INSTITUTIONS IN BLIDA STAT**

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ARTICLE INFO	ABSTRACT
<p><b>Article history:</b>  <b>Received:</b> April, 22<sup>nd</sup> 2024  <b>Accepted:</b> June, 21<sup>st</sup> 2024</p>	<p><b>Objective:</b> The aim of this study is to examine the role of lean accounting methods in cost reduction, and how the lean accounting methods are implemented in the modern manufacturing environment</p>
<p><b>Keywords:</b>  Lean Thinking;  Lean Manufacturing;  Lean Accounting;  Cost Reduction;  Lean Accounting Methods.</p>	<p><b>Theoretical Framework:</b> Identifying the different meanings pertaining to the lean accounting and defining the principles, practices and tools for lean accounting enforcement.</p>
	<p><b>Method:</b> this study was an exploratory study of 180 employees in ten industrial institutions of Blida Stat, using the questioner tool and “Microsoft Excel” for unloading data and the Statistical Packages for Social Sciences SPSS V25 for processing data, analyzing and explaining results.</p>
	<p><b>Results and Discussion:</b> This study concluded that lean accounting methods contribute in costs reduction from three aspects which are save costs in product planning and designing phase then avoid additional costs in product implementation phase, It also contributes to profit maximization, competition support, and maximizing the value of products from the customer's perspective.</p>
	<p><b>Research Implications:</b> The findings suggest providing the elements for implementing the lean accounting tools through replacing the wide production system by the lean production one in order to reduce wastage</p>
	<p><b>Originality/Value:</b> Our study is different from the previous ones as it is among the modern and few studies particularly in the Algerian environment. The study focuses indeed on bringing out the probable implementation of the lean accounting tools in the productive corporations and its contribution in reducing costs in the industrial corporations</p>
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**O PAPEL DOS MÉTODOS DE CONTABILIDADE ENXUTA NA REDUÇÃO DE CUSTOS: ESTUDO EXPLORATÓRIO PARA UMA AMOSTRA DE INSTITUIÇÕES INDUSTRIAIS NO ESTADO DE BLIDA**

**RESUMO**

**Objetivo:** O objetivo deste estudo é examinar o papel dos métodos de contabilidade enxuta na redução de custos e como os métodos de contabilidade enxuta são implementados no ambiente de manufatura moderno

**Estrutura Teórica:** Identificar os diferentes significados relativos à contabilidade enxuta e definir os princípios, as práticas e as ferramentas para a aplicação da contabilidade enxuta.

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**Método:** este estudo foi uma pesquisa exploratória com 180 funcionários de dez instituições industriais do estado de Blida, usando a ferramenta de perguntas e o "Microsoft Excel" para descarregar os dados e o Statistical Packages for Social Sciences SPSS V25 para processar os dados, analisar e explicar os resultados.

**Resultados e Discussão:** Este estudo concluiu que os métodos de contabilidade enxuta contribuem para a redução de custos em três aspectos: economizar custos na fase de planejamento e projeto do produto e evitar custos adicionais na fase de implementação do produto.

**Implicações da Pesquisa:** Os resultados sugerem o fornecimento de elementos para a implementação das ferramentas de contabilidade enxuta por meio da substituição do sistema de produção ampla pelo sistema de produção enxuta, a fim de reduzir o desperdício

**Originalidade/Valor:** Nosso estudo é diferente dos anteriores, pois está entre os modernos e poucos estudos, especialmente no ambiente argelino. O estudo se concentra, de fato, em destacar a provável implementação das ferramentas de contabilidade enxuta nas corporações produtivas e sua contribuição para a redução de custos nas corporações industriais

**Palavras-chave:** Pensamento Enxuto, Manufatura Enxuta, Contabilidade Enxuta, Redução de Custos, Métodos de Contabilidade Enxuta.

## EL PAPEL DE LOS MÉTODOS DE CONTABILIDAD AJUSTADA EN LA REDUCCIÓN DE COSTES: EXPLORATORY STUDY FOR A SAMPLE OF INDUSTRIAL INSTITUTIONS IN BLIDA STAT

### RESUMEN

**Objetivo:** El objetivo de este estudio es examinar el papel de los métodos de contabilidad ajustada en la reducción de costes, y cómo se implementan los métodos de contabilidad ajustada en el entorno de fabricación moderno

**Marco Teórico:** Identificar los diferentes significados relativos a la contabilidad ajustada y definir los principios, prácticas y herramientas para la aplicación de la contabilidad ajustada.

**Método:** este estudio fue un estudio exploratorio de 180 empleados en diez instituciones industriales de Blida Stat, utilizando la herramienta de cuestionario y "Microsoft Excel" para la descarga de datos y el Statistical Packages for Social Sciences SPSS V25 para el procesamiento de datos, análisis y explicación de los resultados.

**Resultados y Discusión:** Este estudio concluyó que los métodos de contabilidad ajustada contribuyen a la reducción de costes desde tres aspectos: ahorran costes en la fase de planificación y diseño del producto y evitan costes adicionales en la fase de implementación del producto. También contribuyen a la maximización de los beneficios, el apoyo a la competencia y la maximización del valor de los productos desde la perspectiva del cliente.

**Implicaciones de la Investigación:** Los resultados sugieren proporcionar los elementos para la aplicación de las herramientas de contabilidad ajustada a través de la sustitución del sistema de producción amplia por el de producción ajustada con el fin de reducir el despilfarro.

**Originalidad/Valor:** Nuestro estudio se distingue de los anteriores por ser uno de los más modernos y escasos, sobre todo en el entorno argelino. El estudio se centra de hecho en poner de manifiesto la probable aplicación de las herramientas de contabilidad ajustada en las empresas productivas y su contribución a la reducción de costes en las empresas industriales.

**Palabras clave:** Lean Thinking, Lean Manufacturing, Lean Accounting, Reducción de Costes, Métodos de Lean Accounting.

## 1 INTRODUCTION

As the classical accounting fails to determine and follow up meticulously the products costs, starting from their introduction as raw materials of the company until their appearance as final products, the lean accounting emerges with the objective of eradicating any activity that seems useless in all the phases of the value chain from the research and development until the after-sales services.

Consequently, certain rational decisions likely to reduce costs and increase earning capacity but also to save time and to reach the competitive cost which is considered as one of the most important approaches of confrontation used by the corporate when working under conditions of the acute competition, both local and universal. Besides, the positive authentic reduction at the level of competitive cost contributes in reaching the other strategic goals of the corporation. Indeed, it has not become anymore a goal related to specific administration or site, but a general goal sought for by all the corporate administrations and shall be enforced in all the worksites and places of cost occurrence.

In fact, it needs a wise thought leaning to the use of modern ways of production and modern accounting systems as to englobe (activity-based costing, target costing, sustainable improvement, production-in-time) likely to reinforce the corporate aptitude to compete and thus to carry on and obtain a unit cost less than that for competitors, by presenting the product with the required quality in the market and seeking constantly for improvement whenever the opportunity is given.

In the light of the above, we can define the subject of study as follows:

- Do the lean accounting methods play a role in costs reducing in the industrial corporations subject of the study sample?

In order to go deeper on this topic, a set of secondary questions has been elaborated as follows:

- what is the role of the target costing method in costs reducing in the industrial corporations subject of the study sample?
- what is the role of the activity-based costing method in costs reducing in the industrial corporations subject of the study sample?
- what is the role of the sustainable improvement method in costs reducing in the industrial corporations subject of the study sample?
- what is the role of the production-in-time method in costs reducing in the industrial corporations subject of the study sample?

To handle the issued introduced, the following hypothesis are set up:

The main hypothesis  $H_0$ : there is no statistic relationship between the lean accounting methods and costs reducing in the industrial corporations subject of the study sample at significance level ( $\alpha \leq 0.05$ ).

Secondary hypotheses are formulated as follows:

**H<sub>0</sub>:** there is statistically significant relationship between the target costing method and costs reducing in the industrial corporations subject of the study sample at significance level ( $\alpha \leq 0.05$ ).

**H<sub>0</sub>:** there is statistically significant relationship between the activity-based costing and costs reducing in the industrial corporations subject of the study sample at significance level ( $\alpha \leq 0.05$ ).

**H<sub>0</sub>:** there is statistically significant relationship between the sustainable improvement method and costs reducing in the industrial corporations subject of the study sample at significance level ( $\alpha \leq 0.05$ ).

**H<sub>0</sub>:** there is statistically significant relationship between the in-time production method and costs reducing in the industrial corporations subject of the study sample at significance level ( $\alpha \leq 0.05$ ).

Based on the previous review, the objective of this study is to Identify the different meanings pertaining to the lean accounting and to define the principles, practices and tools for lean accounting enforcement. Moreover this research is expected to contribute how the lean accounting methods are implemented in the modern manufacturing environment.

among the studies and researches handling the subject of our study we find:

The study of Okpala Kenneth Enoch (2013), entitled: "Lean Accounting and Lean Business" Philosophy in Nigeria: An Exploratory Research, international review of Economics, Finance and Administration, volume 02, No 07, this study aims at reaching the quality product and the clients' satisfaction by implementing the philosophy of lean accounting and business as this exploratory study tries to check up the implementation of the lean accounting as a strategy to realize the lean business philosophy in the manufacturing companies in Nigeria. The Study community consists of 53 industrial companies, adhering to the Nigerian Stock Exchange. One of the most important results discovered by the study is that the lean accounting is positively linked to the lean business philosophy.

The study of Mokhaled Fouad Choujaa (2015), entitled "The role of lean accounting in cost reducing, application study on FINE hygienic paper company", Magister thesis, Faculty of Business, Middle-East University, Amman, Jordan; the study aims at setting out the main concepts and principles upon which the lean accounting is focused in comparison with the traditional accounting; the study also aims at outlining and analyzing the steps to apply the lean accounting as a tool to reduce costs, but also in an attempt to bring out the way to minimize discards, wastage and time being exhausted in the production process in order to reach the optimum use of resources and potentialities. The best results obtained are as follows:

- the use of the lean accounting tools plays a role in reducing, directly and indirectly, the costs in the industrial businesses in the long term;
- the use of the Lean accounting tools contributes to fight waste and loss which are crucial for achieving the goals;
- some lean accounting tools have an impact on reducing the industrialization costs by increasing the benefit such as the value chain and others affect the sale price to become a competitive rate such as the target cost.

The study of Ryma BEN BAIRA (2017/2018), entitled “the cost reduction strategy as a tool to sustain the competitive advantage in the economic corporation”, Ph.D. Thesis, Faculty of Economic, Commercial and Management Sciences, University of Blida 2, Algeria. The study aims at bringing out the importance of acquiring the competitive advantage by the corporation in a very competitive environment, identifying most of the modern tools used currently in cost accounting to reduce the business costs and proving that the costs could be used as an effective competitive and strategic weapon. The most important findings are as follows:

- the implementation of the cost reduction strategy by the cost accounting contributes to the reinforcement of the competitive advantage in the corporations and increases its market share;
- as to reduce the costs of any product, the corporation needs to go across several operations and tools with coordination among them in order to achieve the corporate goals, namely: activity-based costing, target costing, just in-time manufacturing;
- the implementation of cost reduction tools by the company increases its competitive advantage and achieves its customer satisfaction.

The study carried out by Abdesslem Tayeb and others (2021), entitled: “the role of lean accounting in reducing the production costs in the economic company, case study of SONATRACH company, Subsidiary of *Jebel Onk- Tebessa*”, the “Economic Visions” magazine, volume 11, No 01. The study aims at identifying the impact of implementing the lean accounting and its tools on the performance of SONATRACH company in particular, by adopting a series of field data obtained from the company which is the subject of study. The study has led to a series of results, mainly:

- the lean accounting contributes in reducing the production costs through the weekly performance fund;

- the classical performance of the corporate can be improved through incorporating the lean systems into production. For instance, the use of solar energy in supplying the extracting engines of oil wells may lead to such a fact;
- the lean tools can be implemented to reach good performance combinations;
- SONATRACH company, Subsidiary of *Jebel Onk- Tebessa*”, can implement the lean production systems to provide contributing energy alternatives.

The study carried out by Walid MEREGHNI, Zakaria DEMDOUM (2022), entitled “The lean accounting and its role in reinforcing the costing-based competitive strategy –field study-“ , *AL-AFAQ Journal of Economic Studies*”, volume 07, No 01. The study aims at emphasizing the role of the lean accounting as a modern approach to control costs and reduce loss of resources, which helps the organizations to reinforce its competitive strategy. In order to achieve the study goals, the descriptive and analytical approach as well as a questionnaire with aspects corresponding to the subject and goals of the study were drawn upon for. A random sample, consisting of 100 persons among business managers in the Algerian environment, was chosen. The most important obtained results are as follows:

- the organizations in the Algerian environment are highly and constantly seeing for the reinforcement of lean accounting practices;
- the business organizations in the Algerian environment works constantly for reinforcing the competitive cost reduction strategies;
- there is a significant impact of the lean accounting practices, based on cost reduction, in the Algerian business environment.

Our study is different from the previous ones as it is among the modern and few studies particularly in the Algerian environment. The study focuses indeed on bringing out the probable implementation of the lean accounting tools in the productive corporations and its contribution in reducing costs in the industrial corporations, checking whether some Algerian companies implement the lean accounting to respond to the accelerating change, identifying the most important tools being implemented to reach the expected goals in order to eliminate wastage, to ensure sustainable improvement and reduce costs. The scoping study was tested by using the SPSS to identify the strengths of the companies subject of the study when they implement the lean accounting and the weaknesses in case of its non-adoption as a system, as well as reaching the most important results in terms of study and testing assumptions.

## 2 LITERATURE REVIEW

### 2.1 LEAN ACCOUNTING AND COST REDUCTION

The modern industrialization environment has undergone rapid and successive advances. Consequently, all the corporations work for sustainable improvement and development in order to achieve competitiveness with the other institutions through the optimal use of resources and attaining the highest customer satisfaction level.

**What is the lean accounting:** Before addressing the meaning of the lean accounting, one must tackle some relevant terms which consist in:

The meaning of lean thinking: it has been defined by Womack & James as: “lean production system as it provides a mean to work more and more with less and less, less human efforts, less material, less time and less space, that is to say lower usage of less inputs to generate the same outputs or more”(Womack & Jones, 2003, p. 15). Besides, it is known as:” a product unaffected by the loss if the activities characterized by the loss are eliminated, in a way to provide ways to identify the value. It also includes a series of measures undertaken to fight against the loss”(Kocamiş, 2015, p. 6).

In the light of the two above-mentioned definitions, we can conclude a comprehensive definition of the lean thinking, which is a philosophy or a modern thought based on inclusiveness. In fact, it represents a strategy that depends on the way of thinking, which focuses on customers and the continual improvement of the ways of offering high-quality products and services.

**Lean manufacturing:** is a series of Japanese tools and methods used by many industries; it is a methodology inspired by Toyota practices. The execution of this method consists in defining the waste (loss) throughout all the steps of the value chain; then reorganizing the production in order to obtain strong productive gains (delays, costs and stock level), increasing production, quality and customer satisfaction.

The lean manufacturing aims at improving quality, costs and delivery time as well as the staff’s safety”(Azzemou, 2016, p. 35). The lean manufacturing is simply defined as being: “a way to achieve more with less resources particularly, producing high-quality products with smaller space, stock in operation, stocking finished products, the movement of substances, activities without added tax value, human efforts. The lean manufacturing consists of elements of managing comprehensive quality in due time and so on, under a system which has been set to achieve flexibility and high customer satisfaction level”(Dixit & Dave, 2015, p. 69).

In the light of the two previously mentioned definitions, we conclude that the lean manufacturing is a method to define and eliminate the loss through the process of product flow, a strategy for managing operations and which depend on withdrawal upon request. Moreover, the lean manufacturing combines both professional production and wide production which uses less resources to achieve widest possible outputs, while maintaining the appropriate flexibility and high quality.

The meaning of lean accounting: it is an administrative accounting system aimed at increasing benefits, striving for excellence, eliminating wastage and loss, delivering the products to customers in due times as well as reaching the expected goals set out by the corporate that are likely to help the business managers to take the appropriate administrative decisions in time finally. Consequently, costs will decrease and benefits will increase”(Jasim & Alobaidy, 2019, p. 1815)

It has been also defined as: “a series of administrative accounting tools being adapted and organized with a set model of decision to supply the decision-making process for the corporations those adopt the principles and values of the lean manufacturing”. (Teixeira & others, 2019, p. 445)

In general, a comprehensive definition of the lean accounting could be provide; it is, indeed, an administrative system aimed at eliminating wastage and loss, such as accelerating the procedures, eliminating errors, making procedures clearer and understandable. Moreover, the use of techniques in this regard contributes in eliminating the activities that do not add value to the customer. It concerns as well the simplified practices of accounting being designed for financials through facts and numbers easy to understand. Consequently, valuable information is presented allowing the corporate to enter into competitiveness on the market leading to cost reduction.

## 2.2 PRINCIPLES, PRACTICES AND TOOLS OF THE LEAN ACCOUNTING

The following table shows and summarizes the principles, practices and tools of the lean accounting:



**Table 1***Principles, practices and tools of the lean accounting*

Principles of the lean accounting	Practices	Tools
a. The simple lean accounting work	1. Eliminating constantly the wastes of transactions, operations, reports and other accounting methods.	a. Mapping the stream and future value flow.* b. Kaizen (the sustainable improvement).** c. Resolving the problem by using: plans, work, examine, decide.
b. Accounting operations that support conversion to agility	1. Administrative supervision and sustainable improvement.	a. Map of performance measuring and its relationship with the cell/operation matrix, value currents, linking the manufacturer's report with the business strategies, target costs and lean improvement. b. Performance boards of value stream include rest during the operation and the projects of sustainable improvement. c. The box score shows the performance of the value stream
	2. Cost management	a. Value stream cost b. The revenue lists of the value stream
	3. Customers, suppliers' value and cost management	a. Target costs.
c. Communicating information clearly in time (the visual management)***	1. Preparation of financial reports	a. Preparation of financial statements in easy language b. Implementation of cash basis.
	2. Preparation of visual financial reports and non-financial performance measures.	a. Preparation of initial reports using the visual performance boards: for classes, factories, value current, production cell/operation, product design, sales/marketing, administration, etc
	3. Decision-making	a. Using the additional cost and analyzing the profitability using the value current cost and the score box.
d. Planning from the perspective of agility	1. Planning and budget	a. To promote Hoshin policy. *** b. Planning sales, operations and finance.
	2. The impact of lean improvement	a. Value current cost and energy analysis b. current and future maps of value current c. Shows the operational, financial changes and energy of lean improvement
	3. Capital plans	a. Financial plan to beneficiate from lean changes. b. The progressive impact of the capital expenditures on the score box value current, it is often used with P3 inputs.****
	4. Investing in people	a. Sharing the sustainable improvement to follow the performance measure, staff satisfaction and mutual training b. repartition of profits
e. Reinforcing the internal accounting supervision	1. The internal supervision on the basis of the lean	a. The matrix of excluding financial transactions b. The maps of the operation showing supervision and risks.
	2. Stock evaluation	a. Simple methods to evaluate the stock without the need for constant inventory records; the product costs can be used in case of stock reduction and under visual supervision.

Source: Maskell &amp; Baggaley, 2006, p. 37.

Some notions appearing in the table above are explained as follows (Dandis, 2018, p. 27):

**\*Value stream mapping (VSM):** is one of the strongest tools of lean thinking as it mainly targets value stream and the definition of improvement fields. The VSM focuses on the value in the context of what the customer can pay or what makes the product attaining the customer satisfaction. The VSM main goal consists in estimating the time related to the flow of a product throughout the whole system. (Rabai, 2019, pp. 31-37)

**\*\*Kaizen:** sustainable improvement, which is the translation of the Japanese word Kaizen. This word consists of two parts, the first one Kai which means the change and the second one Zen which means good. Therefore, the word Kaizen means changing for the better or sustainable improvement. In fact, after the World War II, Japan launched the reconstruction process, hence, the Japanese companies, principally Toyota, adopted the principle of sustainable improvement.

**\*\*\*Visual Management:** Hines explains that the visual management aims at providing information at the operating point. The information must be presented in time and in an understandable way to help everybody in managing and improving the operation. Here, the visual management triangle relies on sharing knowledge and responsibility. If the visual information is available on the workplace, the problems are detected in advance and it would be easier to carry out improvements or supervision.

**\*\*\*\*Hoshin policy:** is a way to set the future strategic goals and develop the financial means to make of these goals reality. Hoshin policy consists of the six following steps: (Tayib, 2017, p. 46)

- defining the main issues confronting the institution;
- setting measurable targets and the actions that deal with this issues;
- fixing the general vision and the goals;
- developing strategies to support the achievement of goals;
- identifying the methods and techniques that facilitate the achievement of the goals;
- implementation of the all the necessary steps for every business transaction.

**\*\*\*\* 3P Approaches (Production, Preparation, Process):** it is one of the components of the comprehensive input to design agility, which includes the design of monitors from the financial team to Kaizen. The main objective of the 3P is redeveloping the process or designing the product that meets the customer's needs. Indeed, the 3P typical steps are as follows: objective setting (producer's needs) and the process design, planning, finding alternatives,

design review and finally the execution of the implementation of the plan to develop the corporate. (Al Moussoui & Abbas, 2015, p. 14)

## 2.3 COST REDUCTION

What is cost reduction:

a- **Meaning of cost:** cost has different meanings, notably:

It has been defined by the American Institute of Accountants as follows: “the sacrifice value to ensure benefit or the amount being measured with the paid cash in exchange for goods or services”. (Errouashda, 2011, p. 22)

It has been also defined as: “optional sacrifice, either material or moral, which should have an economic value to obtain a current or future benefit”. (Mustafa, 2008, p. 58)

In the light of the above, we conclude that the cost is the cash value paid to obtain an economic benefit consisting in a good or a service. It also concerns scarifying the alternatives that have not been used due to the use of the resources available in an alternative instead of the others.

b- Definition of the cost reduction: this term has different meanings, namely:

Working on the improvement of the workers’ skills and the optimal use of the available resources to realize the abundant utilization, change the industrialization methods, facilitate the productivity process, remove restrictions and increase the quality level to reach the objective criteria. (Hussein & Mokdad, 2020, p. 597)

Reducing the total number of money. This kind may be realized without planning or administrative efforts, for instance when the reduction is due to reducing the quantity of production, leading effectively to cost increase and not decrease. This not the intended meaning but rather to reduce the scopes of inevitable waste and loss and to eliminate non-value added activities. (Rajkhan, 2002, p. 53)

From the foregoing, we can say that cost reduction is a process consisting in reducing expenditures in a way to increase benefits through the optimal use of the available resources, looking constantly for the areas of waste and extravagance and eliminating the non-value added activities.

**Cost reduction requirements:** the requirements for the procedures of cost reduction focus on: (Al-Kassab, 2019, p. 58)

- the availability of multi-function team from all the departments of the corporate. The importance of each cost element will be evaluated specifying the expected rate of

availabilities under each alternative among the suggested ones under which the product map will be drawn as well as its necessary costs;

- the need, by the higher administration, for supporting the multi-function team and the tasks that are carried out;
- confronting the resistance cases that the team faces regarding the cost reduction process and defining the risks resulting from this process and that influence the decisions taken;
- the implementation of the appropriate accounting techniques and tools dealing with cost reduction process, the most important of which are the target cost, resource consumption accounting and studying the impact of their implementation on the product value and its cost structure;
- building up a strong relationship with suppliers in order to make the best price offers for the substances that must be included in the production, including the characteristics and price of each substance;
- cost reduction methods: cost reduction allows maintaining the market place of the corporate and ensuring its survival. The administration adopts certain methods to reduce costs, each method corresponds to the nature of the productive process in the corporate and the market case in terms of competitiveness:

**a-Target costing method:** “it is the system of benefit planning and cost management to reach the competitive price through concentrating on the initial steps of manufacturing and developing the product in the whole product life cycle. It relies on the sale price as a key guide taking into account the customer’s needs and expectations. The target cost method is also considered as a tool to fix the product cost on the basis of the market cost”. (Chalabi & Aymen, 2021, p. 115)

The target cost is a method based on the idea of reducing costs and increasing their profitability in a way to reach the customer satisfaction. It is also considered as a system for the strategic management being based on the market research to fix the competitive price and the characteristics of the product that meets the customer satisfaction. The target costing aims at: (Bouriche & Ben Elba, 2021, p. 378)

- reducing the product cost before it occurs;
- fixing the sale price which makes the corporate reaching its market part;
- increasing and improving the product quality and its distinctiveness through its presentation in due time. Consequently, the target time will be reduced starting from thinking to present the product until its real presentation to the customers;

- focus on the study of the external environment of the corporate with emphasis on the characteristics of the product, the customers need and the competitors' abilities and circumstances;
- manufacturing products with high quality in a way to meet the customer's needs in terms of price and quality;
- reducing the product costs to a level that ensures achieving the target profit and the expected price;
- supervising the product life cycle from the beginning until the sale and after-sale services.

**b-Method of activity-based costing:** "It consists in series of interrelated and complementary accounting measures intended to measure the cost and profitability structure of the products offered by the corporates, through dividing up performance into different activities, finding the cost of each activity then charging the cost of these activities on the products in the light of appropriate cost drivers" .(Mohamed & Mansour, 2014, p. 63)

The activity-based costing is one of the optimal tools in improving the indirect costing systems and their reclassification as direct costs through dividing up the cost groups and linking them to the different activities. This system allows achieving measurement engineering and decision-making about the activities, putting the business on the excellence way. Among the advantages of the activity-based costing: (Ali, 2017, p. 161)

- providing the available opportunity to the administration to reduce costs precisely and clearly;
- clarifying the stages and processes went through by the product and the activities contributing separately to its composition;
- reducing the cost of any product or stopping the additional activities and eliminating their cost leads to reducing the cost of the finished product;
- an effective tool in assessing performance, increasing the performance of activities and making the right decisions as it provides accurate information while the production workers spare efforts to reduce costs;
- fixing the activities and costs of each department within the corporate;
- the activities are an important element for activity-based costs and explain the work carried out by the corporate.

**c- Sustainable improvement method:** “It is a philosophy working on the improvement of all the factors related to processes and activities those transfer constantly inputs into outputs. This process includes materials, methods, services and individuals”. (Kheraz, 2018, p. 81)

The sustainable improvement method depend on a series of procedures based on industrializing processes taking the form of small and constant progressive steps in order to reduce costs and improve the quality. Some consider this method as a strategy opposing the renewal which applies radical change. The importance of sustainable improvement consists in the following points:(Abdurrahman & Ahmed, 2013, pp. 231-232)

- the sustainable improvement is neither a technique nor a tool or a method but a way of life focusing on the customer at the highest market share, since the customer is among the basic foundations for the success of the corporate and its survival in the market;
- the sustainable improvement is race without the finish line and an endless stage since there are fields to improve all the parts of the corporate;
- the sustainable improvement is based on the idea of prevention is better than cure through the principle of working on a sound basis since the beginning.
- the sustainable improvement forces the administration and the workers to consider learning as the main objective to reach since it is one of the methods to reinforce corporates in terms of competition.

**d-Just-in-time production method:** “It is a Japanese administrative philosophy applied to the industrialization field. This philosophy consists of the appropriate categories in terms of appropriate quality and quantity in the right place at the right time. It has been widely reported that the sound use of the common information technology industry increases quality, productivity and skills, improves communications, reduces costs and wastes” (Kootanaee & others, 2013, p. 8)

The Just-in-time production method is a stocking strategy used by the corporations to increase skills and reduce wastes by obtaining goods as stipulated exclusively in the production process; therefore, the stocking costs will decrease. This system aims at achieving the following objectives: (Al Bardini, 2014, p. 27)

- eliminating overproduction. The production will be made upon request;
- eliminating waiting time and diminishing preparation and reinstatement time;
- total elimination of deficient production;
- reducing the stock to its minimum level (to zero);
- focusing exclusively on the productive processes and reducing unnecessary movements.

### 3 MATERIALS AND METHODS (EXPLORATORY STUDY ON A SAMPLE OF INDUSTRIAL CORPORATIONS SUBJECT OF SURVEY SAMPLE, IN THE PROVINCE OF BLIDA)

The present axis gives the definition of the industrial corporations subject of survey sample, then describes the survey methodology and the tool being used to collect data as well as the methods of statistical treatment used, the procedures of confirming the accuracy of the tool, analyzing and interpreting the results of the field study.

#### 3.1 PRESENTATION OF THE INDUSTRIAL CORPORATIONS SUBJECT OF THE SURVEY SAMPLE

The industrial corporations subject of the survey sample can be presented throughout the following table:

**Table 2**

*Identification of the industrial corporations subject of the survey sample*

Corporation name	Corporation location	Legal form of the corporation
AMMOUR corporation for canned goods Maghreb	Industrial Area Mouzaia, Province of Blida	Private limited company
KADRI Lightning Corp.	Industrial Area Ben Boulaid Centre, Blida	Private limited company
Nestlé Water Corp.	Province of Blida	Private limited company
Agri-food complex CHIFFA for dairy products	Municipality of Chiffa, Province of Blida	Private limited company
Algerian company of Detergents Force Xpress	Oued El Alleug, Province of Blida	Private limited company
Bibila corp. for Biscuits and Chocolate production and marketing	Industrial Area Ben Boulaid Centre, Province of Blida	Private limited company
Granu Centre company of Aggregate production and marketing	(Central Administration), Municipality of Meftah, Province of Blida	Public economic joint-stock company
Cerazam corp. for ceramic products manufacturing	Industrial Area Ben Boulaid Centre, Province of Blida	Private limited company
Corporation for manufacturing automobile parts	Industrial Area Ben Boulaid Centre, Province of Blida	Private limited company
Mitidja Corp. of Cement	Meftah, Province of Blida	Public economic joint-stock company

Source: prepared by researchers on the basis of the information provided by the administration of the industrial corporations subject of the survey sample.

### 3.2 METHODOLOGICAL FRAMEWORK OF THE FILED STUDY

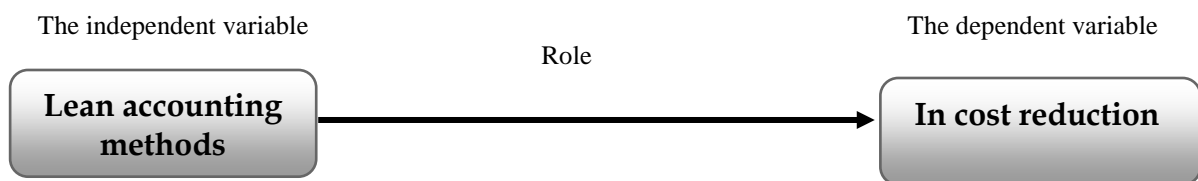
This part is considered as an introduction to the field study, by presenting a model of the study, the statistical methodology relied upon and identifying the limits and sample subject of survey.

Model of the survey: in the light of the problematic study and its objectives, it was necessary to build up a proposed model to identify the role of the lean accounting methods in cost reducing. In fact, the Figure 1 shows two kinds of variables:

- the independent variable: lean accounting methods;
- the dependent variable: cost reduction.

**Figure 1**

*The study model*



Source: prepared by the authors (2023)

**The survey methodology:** to answer the research problematic and secondary questions and to reach the study goals, we relied, on the application side, on the analytical descriptive method which corresponds to the phenomenon subject of the study. In fact, it does not depend only on data collection to describe the phenomenon, but also expresses it in terms of quantity, quality, analysis and identifying the relationship among its variables in order to interpret it well and reach logical results likely to support the operational reality of the phenomenon subject of the study.

### 3.3 LIMITATIONS AND SAMPLE OF THE STUDY

This element will allow identifying the limitations of the study and the sample relied upon to carry out the practical study.

**a-Limitations of the study:** mean the spatial, time, human and objective limitations, as explained below:



- spatial limitations: they have been carried out in 10 industrial corporations in the province of Blida;
- time limitations: the present study was made in 2022;
- human limitations: the present study includes a sample of employees in 10 industrial corporations;
- objective limitations: consist in the objective field to identify the role of the lean accounting methods in cost reduction.

**b-The study sample:** we focus in our research paper on an exploratory study of a random sample of employees such as accountants, financials, administrative officers and even technicians. 190 questionnaires were distributed, 186 of them were returned and 4 cancelled. The number of lost and neglected questionnaires was 6. Therefore, we obtained 180 valid questionnaires were relied upon for the study in order to reach the expected goals of the research. The following table shows the number of the distributed, excluded and valid questionnaires.

**Table 3**

*Distribution of the questionnaire*

The Questionnaire				
Distributed	Lost and neglected	Cancelled	Valid	Answering rate
190	06	04	180	94.73 %

Source: prepared by the authors (2023)

### 3.4 DATA COLLECTION TOOLS AND USED STATISTICAL METHODS

This part shall identify the data collection tools, their structure and the statistical methods used to analyze the results.

Data collection tools:

**a-The questionnaire:** is the most famous and widely used tool. It is defined as :”A series of questions addressed to the interviewees in a personal interview”(Abdurrahman & Ali Bedoun, 2002, p. 180). In order to collect data and check their accuracy, we went to all the corporations subject of the sample study and questionnaires were distributed to the employees with the explanation of some expressions that seemed incomprehensible to them, in order to obtain answers close to the reality of cost measuring tools applied to the corporations subject of the sample study.

**b-Description of the questionnaire:** We rely on five-point Likert scale, which is a method to measure attitudes and opinions. It is used in the psychological tests and was inspired by the psychologist Rensis Likert. It is used in the questionnaires particularly in statistics. The measuring relies upon answers showing the degree of approval or opposition regarding a certain behavior. In fact, weights are allocated to the five alternatives as follows:

**Table 4**

*Categories of scales according to five-point Likert scale*

The average	Scales	Studies
[1 – 1.79]	1	strongly Disagree
[1.80 – 2.59]	2	Disagree
[2.60 – 3.39]	3	Neutral
[3.40 – 4.19]	4	Agree
[4.20 – 5]	5	Strongly agree

Source: Izz Abdul Fattah, Descriptive and Indicative Statistical Analysis using the SPSS, Dar Wael for publishing, Jordan, 2005, p 65.

### 3.5 THE QUESTIONNAIRE STRUCTURE AND IDENTIFICATION OF AXES VARIABLES

After designing the questionnaire of the study on the basis of the previous similar literature and consulting with the experienced people and specialists in the accounting field, in a way to cover the hypothesis and objectives of the study. In fact, this questionnaire consists of two main parts as follows:

**a-Personal and Functional Data:** related to the personal data of the individuals subject of the survey sample among professional and technical employees, by answering 03 expressions related to (academic qualification, age, years of scientific experience), in order to reassure that the answerers have the required knowledge to understand the content of the questionnaire and that they are able to answer its questions.

**b-The study themes:** the questionnaire consists of 67 expressions divided into two main themes as follows:

- **the first theme:** the lean accounting methods (it consists of 48 expressions), divided into 6 methods, each method has 08 expressions;
- **The second theme:** cost reduction (it consists of 19 expressions),

**The statistical methods used:** the Statistical Package for the Social Sciences (SPSS, V 25) has been used to analyze the answers of the individualsubject of the survey sample. Furthermore, the following statistical methods were used:

- a) **percentages:** the percentages have been used to identify the rate of people who have chosen each of the answer options to the questions on the questionnaire. (Barakat, 2006, p. 3);
- b) **chronbach' coefficient Alpha of reliability:** is used to make the reliability test for the expressions of the questionnaire. This coefficient takes values from 0 to one. If the data lacks of reliability, the coefficient value equals zero. On the contrary, if there is perfect reliability in data, the coefficient value equals one. As it is well-known in the field of social sciences, the reliability coefficient is acceptable starting from 0.6. Reliability means there is consistency in the results during the implementation of the tool over many times;
- c) **the frequency distributions:** aim at identifying the repeated responses of the individuals subject of the survey sample;
- d) **the arithmetic average:** in order to know the interviewees' opinion trends about each expression of the questionnaire;
- e) **the standard deviation:** is used to identify the deviation of the responses given by the individuals subject of the survey sample, to each expression from its arithmetic average. It is noted that the standard deviation explains the fragmentary responses of the individuals subject of the survey sample;
- f) **pearson correlation coefficient:** to know whether there is correlation between the parts and the strength of relationship. In fact, the correlation will be strong when its value is close to one, weak when its value is close to zero. Its value will be positive when correlation is positive and negative in the event of inverse correlation;
- g) **t-test of one sample:** in order to test hypotheses and check the average significance of each paragraph in the questionnaire;
- h) **correlation coefficients (R):** To identify the strength and nature of the relationship among the survey variables;
- i) **the determination coefficients (R<sup>2</sup>):** is used to identify the quality of the suitability of data; that is to mean to what extent the regression model suits the data; in other terms, to what extent the appreciation values for the dependent variable is close to the observation-based appreciation values;
- j) **f-test:** to test the accuracy of the hypothesis;
- k) **one-way analysis of variance:** to see if there are statistical differences between the averages of different categories or the levels of the independent variable and their impact on the dependent variable.

### 3.5.1 Testing the accuracy and reliability of the questionnaire

1. **testing the accuracy of the questionnaire:** to determine the accuracy of the questionnaire, it was presented in the first step to professors specialized in accounting to confirm that its expressions provide a measure of what they put for and to confirm as well the reaction and understanding of the survey sample to the questions in the questionnaire. Responding to the arbiters' views, we proceeded to the necessary measures in terms of cancellation and modification in the light of the proposals submitted. Thereafter, we came up with the final form of the questionnaire;
2. **reliability of the questionnaire:** we mean by the reliability of the questionnaire the stability of its results that shall not change significantly in the event they are redistributed to the sample individuals over many times during specific periods of time. We checked the reliability of the questionnaire on the basis of Cronbach's Alpha Coefficient as follows:

**Table 5**

*Accuracy and Reliability of the study tool*

The Variable	Cronbach's Alpha Coefficient	Half-split		Accuracy Conf.
		Correlation Conf.	Guttman Coeff	
Lean Accounting Methods	0.84	0.65	0.72	0.88
Cost reduction	0.78	0.78	0.82	0.84

Source: prepared by the authors on the basis of SPSS, V25 program

The below Table 5 indicates that Cronbach's Alpha Coefficient to measure the Lean Accounting Methods reaches 0.84 and through the half-split (Guttman Coefficient) 0.72. As far as regards cost reduction measurement, the reliability coefficient reaches, through Cronbach's Alpha Coefficient, 0.78, and through the half-split (Guttman Coefficient) 0.82. Regarding the accuracy coefficient, for the first theme, it reaches 0.88 and the second theme 0.84. Consequently, we conclude that both measurements have a high level of reliability and accuracy. We can, therefore, rely on the finalized questionnaire being quite confident about its accuracy. The questionnaire is thus valid to analyze results and to bring answers to the questions asked through the study and testing its hypotheses.

### 3.6 RESULTS ANALYSIS

**Analyzing the first part (personal and functional data):** This study relies on a series of independent variables related to the personal and functional characteristics of the individuals subject of the study, in the light of which we can determine the characteristics of the individuals subject of the sample as follows:

**Table 6**

*Distribution of the survey population (personal and functional data)*

Variables	Category	Frequency	Percentage
Age	20-29 years	46	25.6 %
	30-39 years	74	41.1 %
	40-49 years	40	22.2%
	50 years and more	20	11.1%
	<b>Total</b>	<b>180</b>	<b>100 %</b>
Academic Qualification	Senior Technician	47	26.1 %
	Bachelor's Degree	46	25.6%
	Master's Degree	55	30.6%
	Engineer	26	14.4 %
	Ph.D.	06	3.3 %
<b>Total</b>	<b>180</b>	<b>100 %</b>	
Number of years of experience	5 years and less	34	18.9 %
	6 – 10 years	62	34.5 %
	11 to 15 years	44	24.4 %
	16 years and more	40	22.2 %
	<b>Total</b>	<b>180</b>	<b>100.0 %</b>

Source: prepared by the authors on the basis of SPSS, V25 program

The below Table 6 indicates that 26.7 % of the individuals subject of the sample are between 20 and 29 years, while 41.1 % of the individuals subject of the sample, the highest rate, have between 30 and 39 years. Besides, 22.2 % of the individuals subject of the sample have between 40 and 49 years. We note that 11.1 % of the individuals subject of the sample, the lowest rate, are more than 49 years.

26.1 % of the individuals subject of the sample are Senior Technician Diplomaholders while 25.6 % are Bachelor's degreeholders. We note that 30.6 % of the individuals subject of the sample, the highest rate, are Master's degreeholders, while 14.4 % are holders of Engineering Diploma. 3.3 %, the lowest rate, are Ph.D. holders

18.9 % of the individuals subject of the sample, the lowest rate, have 5 years of less of work experience, while we note that 34.5 % of the individuals subject of the sample, the highest rate of interviewees, have between 6 and 10 years of work experience. 24.4 % of the individuals

subject of the sample have between 11 and 15 years of work experience. 22.2 % of the individuals subject of the sample have 16 years of work experience and more.

**Data analysis and interpretation Second Part “Study Themes”.** We find hereinafter the analysis and interpretation of the study themes:

**a-Analyzing the expressions of the first theme (Lean Accounting Methods).** The Table 7 shows the expressions of the first theme to identify the tendencies of the individuals subject of the sample regarding the Lean Accounting Methods.

**Table 7**

*Responses of the individuals subject of the sample regarding the Lean Accounting Methods*

Elements of the First Theme		Arithmetic Average	Standard Deviation
a- Target Costing Method		<b>3,60</b>	<b>,5650</b>
01	The corporation makes a market research and works on achieving the customers' needs	3,83	,7470
02	The target costing method relies on reducing the costs of the product life cycle	3,87	0,730
03	Relying on data technology in work performance accelerates provision of information on competitors' costs	3,47	1,279
04	The corporation relies on putting a target price accepted by customers	3,37	1,326
05	The target costing contributes to cost management through the stage of planning, design and product development	3,53	1,074
06	The implementation of the target costing helps to determine the target profit margin before bringing the product to market.	3,47	1,008
07	The corporation management tries to reduce costs in order to reach the target costing taking into account the product quality	3,83	1,053
08	The target costing method is considered as a complementary system of the cost strategic management	<b>3,43</b>	<b>0,535</b>
b- The activity-based costing method		<b>3,50</b>	<b>0,535</b>
01	The corporation determines cost on the bases of activities starting from dealing with suppliers until the delivery of the product to the customer	3,47	1,167
02	The corporation considers that the cost of setting up and implementing the activity-based costing system overcomes the advantages expected of its implementation	3,13	1,167
03	The non- value added activities may be defined at the implementation of the activity-based costing	3,40	0,968
04	The activity-based costing system aims at cost reduction while maintaining an acceptable quality level.	3,50	1,009
05	The activity-based costing system works on identifying the activities causing costs	3,87	0,937
06	The philosophy of the activity-based costing system allows building up a clear relationship among the relating resources, activities and costs to allow for the identification of the cost place and causes.	3,73	0,828
07	To identify the activities that contribute separately to the product formation contributing to increasing the activity performance skills.	3,47	0,937
08	The activity-based costing system leads to indirect optimal cost assignment to attain accuracy of cost data for the producing unit.	3,40	1,221
c-Sustainable Improvement Method		<b>3,64</b>	<b>0,815</b>
01	The products presented to customers are constantly followed up to ensure their quality	3,63	1,450
02	The corporation encourages the employees to apply new ideas	3,87	1,358
03	The corporation works on setting-up working groups to follow up the sustainable improvement process and determining their responsibilities	3,77	0,971
04	The constant evaluation of the performance by the corporation for its development.	3,63	1,377
05	The sustainable improvement method works on reducing cost through introducing progressive improvements to the production during the product life cycle.	3,63	0,999

06	The corporation develops the sustainable improvement skills among workers	3,37	1,033
07	The corporation administration works on spreading the culture of eliminating wastage (non-value added activities) among workers	3,20	1,400
08	The implementation of the sustainable improvement contributes to domination and improving the product quality	4,03	1,066
d- Just-in-Time Production Method		<b>3,48</b>	<b>0,813</b>
01	The implementation of the Just-in –time production system contributes to reduce stocking costs approaching the zero inventory	3,40	1,276
02	The implementation of the Just-in –time production system reduces the cost of non-investment of stocking areas in new projects	3,37	1,129
03	The corporation deals with certain customers when applying the Just-in –time production system, customers who have a good reputation in terms of payment in due course.	3,43	1,194
04	The Just-in –time production method is used instead of the great method	3,43	1,194
05	Putting the productive machines in one place to save transport and shift time.	3,23	1,223
06	The corporation is interested in the time factor in the production as regards the delivery of the manufactured parts during the different stages of production, in due time.	3,57	1,073
07	The implementation of the Just-in –time production system diminishes the preparation time through training employees and developing their skills	3,70	1,119
08	The Corporation Management adopts a preventive maintenance policy which allows reducing the failures affecting its investments	3,70	1,055
-	General Trend of the First Theme	<b>3,62</b>	<b>0,530</b>

Source: prepared by the authors on the basis of SPSS, V25 program

The above table indicates positive trends of the study population toward the expressions of the Theme Lean Accounting Methods as the total arithmetic average reaches 3,62, it is situated in the fourth category of the five-point scale showing a corresponding choice, and standard deviation 0,530. The averages of tacit dimensions of this Theme were as follows: the average of the target costing method reaches 3.60 with the level Agree, the average of the activity-based method is 3.50 with rating I Agree, the average of the sustainable improvement method is 3.64 with rating I Agree, while the average of the just-in-time production method is 3.48with rating I Agree. The answers were convergent due to the good understanding of the lean accounting methods by the sample population. We also note that:

- **dimension of the target costing:** the Table 7 indicates that the arithmetic average of answers to this dimension reached (3,60) with a standard deviation of (5650,). Pursuant to the survey scale, this dimension indicates the level Agree. Moreover, we note that the average of answers brought by the individuals subject of the research sample to the method expressions constitute a good acceptance. The averages range from 3,37 to 3,87 and their standard deviation range from 0,730 to 1,326. This shows that the dimension of the target costing is acceptable and applicable by the industrial corporations;
- **dimension of the activity-based costing ABC:** the Table 7 indicates thatthe arithmetic average of answers to this dimension reached (3,50) with a standard deviation of (0.535). Pursuant to the survey scale, this dimension indicates the level

Agree. Moreover, we note that the average of answers brought by the individuals subject of the research sample to the expressions of the social dimension scale constitute a good acceptance. The averages range between 3,87 and 3,13 and their standard deviation range from 0,937 to 1,221. This shows that the activity-based costing is accepted by the industrial corporations;

- **the sustainable improvement dimension:** the Table 7 indicates that the arithmetic average of answers to this dimension reached (3,64) with a standard deviation of (0,815). Pursuant to the survey scale, this dimension indicates the level Agree. Moreover, we note that the average of answers brought by the individuals subject of the research sample to the expressions of the social dimension scale constitute a good acceptance. The averages range between 4,20 and 3,20 and their standard deviation range from 0,971 to 1,450. This shows that the sustainable improvement method is accepted by the industrial corporations;
- **The Just-in-time production dimension:** the Table 7 indicates that the arithmetic average of answers to this dimension reached (3,84) with a standard deviation of (0,813). Pursuant to the survey scale, this dimension indicates the level Agree. Moreover, we note that the average of answers brought by the individuals subject of the research sample to the expressions of the social dimension scale constitute a good acceptance. The averages range between 3,70 and 3,23 and their standard deviation range between 1,055 and 1,276. This shows that the Just-in-time production dimension is accepted and implemented as most of the industrial corporations adhere to it.

**b-Analyzing the second Theme (cost reduction):** The Table 8 indicates the expressions of the first Theme to identify the trends of the sample individuals regarding the cost reduction Theme.



**Table 8***Answers of the sample individuals regarding cost reduction*

Elements of the second Theme		Arithmetic Average	Standard Deviation	General trend
01	The corporation searches for the wastage aspects and eliminate them.	3,64	1,057	Agree
02	The corporation negotiate with the suppliers the prices of the purchased products	3,80	1,049	Agree
03	The corporation has a clear plan with specific goals aimed at reducing costs. The administration is committed to its enforcement.	3,50	1,039	Agree
04	The employees are involved in the elaboration of plans to improve quality and performance, contributing thus to reducing the production costs.	3,37	1,244	Neutral
05	The corporation reduces its costs by avoiding the cost of wasted time.	3,44	1,354	Agree
06	The corporation works on eliminating the non-value added activities	3,54	1,131	Agree
07	The corporation implements the accounting techniques and tools dealing with cost reduction process.	3,33	1,269	Neutral
08	The use substances waste is maximized through their remanufacturing or sale.	3,47	1,133	Agree
09	The is a balance between the necessary raw materials and the number of the required products	3,45	,8160	Agree
10	The corporation works on reducing costs in the first stages of production process.	3,77	,8830	Agree
11	Balancing the employees and the tasks that they have been assigned, in a way to avoid employees wasting time or additional wages	3,40	1,301	Agree
12	The corporation carries out development processes of products at the lowest possible costs	3,50	1,498	Agree
13	The corporation works on preventing mistakes and failures in the manufacturing process	3,80	1,113	Agree
14	The corporation reduces its costs by reducing the production costs.	3,70	1,077	Agree
15	The corporation makes the delivery in due time	3,60	1,214	Agree
16	The different resources are used in an efficient way	3,40	1,161	Agree
17	The corporation works on producing its goods and services at the lowest costs in order to dominate its market share.	3,20	1,327	Neutral
18	Cost reduction contributes in increasing the customer satisfaction	3,20	1,370	Neutral
19	The corporation uses developed and modern technological methods to reduce costs.	3,47	1,221	Agree
-	The general trend of the second Theme	3,51	,5760	Agree

Source: prepared by the authors on the basis of SPSS, V25 program

The table above indicates that the arithmetic average of answers in this theme has reached (3,51) with a standard deviation (0,576). Pursuant to the study scale, this variable falls under the field of the fourth category of Likert scale with level Agree. Therefore, cost reduction in the corporation subject of study is acceptable, while negotiating the prices of the purchased products with the suppliers. Besides, it reduces the costs during the first stages of production and works on preventing mistakes and failures during the production process.

**Research Hypotheses Testing:** provides for that:” there is no statistically significant correlation between the lean accounting methods and cost reduction in the economic corporates subject of survey at significance level ( $\alpha \leq 0.05$ ). This hypothesis is based on the possible existence of statistically significant correlation between the lean accounting methods as an

independent variable in one side and cost reduction as a dependent variable in the other side. It has been tested as follows:

**Table 9**

*Analyzing the regression relationship between the lean accounting methods and cost reduction*

Model*	Unstandardized coefficients		Standardized coefficients	T-value	T-significant
	B	Standard Error	Beta		
lean accounting methods	0.172	0.362	-	0,476	0.637
cost reduction	0.951	0.101	0.822	9,421	0,000
Significance ANOVA	0,000				
Correlation Coef. R	0,822				
Coef. of Determination R <sup>2</sup>	0,760				
Model	$Y = a + b X$				
*Independent variable: lean accounting methods      *Dependent variable: cost reduction					

Source: prepared by the authors on the basis of SPSS, V25 program

To confirm this hypothesis, Pearson Correlation Coefficient was calculated and the following table shows the results:

**Table 10**

*Correlation between the lean accounting methods and cost reduction*

The two variables	Pearson Correlation Coefficient	Significance Level
lean accounting methods and cost reduction	0.82	Statistically significant level 0.01 = $\alpha$

Source: prepared by the authors on the basis of SPSS, V25 program

The Table 9 shows the existence of a positive influential relationship between the independent variable “lean accounting methods” and the dependent variable “cost reduction”. In fact, T-Value of the independent variable parameter  $t = 9,421$ , is higher than the value in the table, with a significance level 0.000 lower than the statistically significant level 0,005. Whereas the regression intercept was not significant as the significance level of the intercept 0.637 is higher than 0,05, which means that the regression intercept is not statistically significant and must be removed from the model. Moreover, the model being applied with significant linear regression  $0.000p_{ANOVA} =$ . The value of the correlation coefficient 0,82 shows the positive correlation between the two variables, while the value of the coefficient of determination R<sup>2</sup> was estimated at 0,760, indicating that the variable of the lean accounting methods explains the difference of 76 % in the dependent variable. It is a good contribution in the interpretation of this variable.

Furthermore, the Table 10 indicates that Person correlation coefficient between lean accounting methods and cost reduction reaches 0.87 it is thus statically significant at significance level ( $0.01 = \alpha$ ). There is therefore a statically significant correlation between lean accounting methods and cost reduction and we accept the alternative hypothesis.

Alternative Hypotheses:

**First Alternative Hypothesis:** provides for that:” there is no statistically significant correlation between the lean accounting methods and cost reduction in the economic corporates subject of survey at significance level ( $\alpha \leq 0.05$ ). To confirm this hypothesis, Pearson Correlation Coefficient was calculated as follows:

**Table 11**

*Correlation between the lean accounting methods and cost reduction*

The two variables	Pearson Correlation Coefficient	Significance Level
lean accounting methods and cost reduction	0.57	Statistically significant level $0.01 = \alpha$

Source: prepared by the authors on the basis of SPSS, V25 program

The Table 11 indicates that Person correlation coefficient between lean accounting methods and cost reduction reaches 0.57 it is thus statically significant at significance level ( $0.01 = \alpha$ ). There is therefore a statically significant correlation between lean accounting methods and cost reduction. Consequently, we reject the zero hypothesis, which states that there is no statically significant correlation between lean accounting methods and cost reduction and we accept the alternative hypothesis.

**Second Alternative Hypothesis:** provides for that:” there is no statistically significant correlation between the activity-based costing and cost reduction in the economic corporates subject of survey at significance level ( $\alpha \leq 0.05$ ). To confirm this hypothesis, Pearson Correlation Coefficient was calculated as follows:

**Table 12**

*Correlation between the activity-based costing and cost reduction*

The two variables	Pearson Correlation Coefficient	Significance Level
Activity-based costing and cost reduction	0.67*	Statistically significant level ( $0.05 = \alpha$ )

Source: prepared by the authors on the basis of SPSS, V25 program

The Table 12 indicates that Person correlation coefficient between the activity-based costing and cost reduction reaches 0.67 it is thus statically significant at significance level ( $0.05 = \alpha$ ).

=  $\alpha$ ). There is therefore a statically significant correlation between the activity-based costing and cost reduction. Consequently, we reject the zero hypothesis, which states that there is no statically significant correlation between the activity-based costing and cost reduction and we accept the alternative hypothesis.

**Third Alternative Hypothesis:** provides for that:” there is no statistically significant correlation between the sustainable improvement method and cost reduction in the economic corporates subject of survey at significance level ( $\alpha \leq 0.05$ ). To confirm this hypothesis, Pearson Correlation Coefficient was calculated as follows:

**Table 13**

*Correlation between the sustainable improvement method and cost reduction*

The two variables	Pearson Correlation Coefficient	Significance Level
Sustainable improvement method and cost reduction	0.43**	Statistically significant level (0.01 = $\alpha$ )

Source: prepared by the authors on the basis of SPSS, V25 program

The Table 13 indicates that Person correlation coefficient between the sustainable improvement method and cost reduction reaches 0.43 it is thus statically significant at significance level (0.01 =  $\alpha$ ). There is therefore a statically significant correlation between the sustainable improvement method and cost reduction. Consequently, we reject the zero hypothesis, which states that there is no statically significant correlation between the sustainable improvement method and cost reduction and we accept the alternative hypothesis.

**Fourth Alternative Hypothesis:** provides for that:” there is no statistically significant correlation between the Just-in-time production method and cost reduction in the economic corporates subject of survey at significance level ( $\alpha \leq 0.05$ ). To confirm this hypothesis, Pearson Correlation Coefficient was calculated and the table below shows the results:

**Table 14**

*Correlation between the Just-in-time production method and cost reduction*

The two variables	Pearson Correlation Coefficient	Significance Level
Just-in-time production method and cost reduction	0.52**	Statistically significant level (0.01 = $\alpha$ )

Source: prepared by the authors on the basis of SPSS, V25 program

The Table 14 indicates that Person correlation coefficient between the Just-in-time production method and cost reduction reaches 0.52 it is thus statically significant at significance level (0.01 =  $\alpha$ ). There is therefore a statically significant correlation between the Just-in-time

production method and cost reduction. Consequently, we reject the zero hypothesis, which states that there is no statically significant correlation between the Just-in-time production method and cost reduction and we accept the alternative hypothesis.

## 4 RESULTS AND DISCUSSION

In the light of the present survey, the following results were obtained:

### 4.1 THEORETICAL RESULTS

The Theoretical study produces the following results:

- while using the lean accounting methods, we must take into account the product quality and not only cost reduction, in order to meet the customer's needs;
- the lean accounting may contribute in the corporation improvement through a series of tools, mainly the sustainable improvement and just-in-time production. For this purpose, many corporations apply the lean production systems and control at the same time with the performance of these systems through the implementation of the lean accounting;
- the target costing is considered as an efficient system to manage costs through the stages of product design and development, pricing, increasing profitability in a way to reach the customer's satisfaction. This system helps the corporate management to take strategic decisions related to costing. It is subsequently considered as a planning tool of profitability and a mean to achieve competitive advantage;
- the activity-based costing allows fixing accurately and precisely the unit cost, supervising its activities and managing optimally its resources. It is among the systems that resonate widely in the corporations providing information for decision-making;
- the implementation of the just-in-time production system by the corporation allows reducing the damaged stock and providing high-quality warehouse, extending the stocking areas or using them for investments in a way to reduce time cost spent in transporting the raw materials from stores to factory as well as in preparation process;
- cost reduction in the industrial corporation plays an important role in the event of the absence of technological, inventive and skills factors, as reducing product prices become one of the most important elements relied upon. Hence, the best use of the different available resources is necessary.

## 4.2 PRACTICAL RESULTS

The field study shows that the corporations subject of the survey sample apply the studied lean accounting methods but not in the true scientific way. Moreover, some corporations rely only on one method such as the activity-based costing, target costing, while others, those relying on orders in terms of production, have a major focus on the just-in-time method like the Company of Biscuit and Chocolate production and marketing. In the meantime, most of the corporations subject of the sample survey endeavor to implement the sustainable improvement method as this system relies on a series of procedures that focus on the manufacturing processes in small and constant progressive steps in order to reduce costs and improve products quality.

- the adoption of the lean accounting methods by the corporations subject of the sample survey has a positive impact on improving its product quality, delivery time and increasing production;
- while implementing the lean accounting methods, the corporations subject of the sample survey attempt to eliminate the transactions that do not add value to the product;
- the lean accounting methods contribute in development and value better the customer of the corporations subject of the sample survey;
- the non-involvement of the employees of the corporations subject of the sample survey in setting up the plans aimed at improving the performance quality. This is considered as a negative point that reduces invention and creativeness;
- we has realized that the corporations subject of the sample survey do not develop the continuous improvement skills among all the employees by providing training sessions;
- it turns out from the results of the study that the employees of corporations subject of the sample survey agree that the lean accounting methods contribute in reducing costs.

## 5 CONCLUSION AND RECOMMANDATION

The lean accounting has developed in the economic corporations as it has been relied upon to maximize benefits and reduce costs, while maintaining the product quality. In order for these corporations to achieve those goals, they must be able to control efficiently their costs and eliminate all the transactions that do not add value to the product or the customer. They could thus eliminate different types of waste and loss and improve productivity.

This study concluded that lean accounting methods contribute in costs reduction from three aspects which are save costs in product planning and designing phase then avoid additional costs in product implementation phase. It also contributes to profit maximization, competition support, and maximizing the value of products from the customer's perspective. So we confirm that there is a positive influential relationship between the independent variable “lean accounting methods” and the dependent variable “cost reduction”.

In the light of the present study and on the basis of the results obtained, some scientific suggestions may be introduced, namely:

- providing the elements for implementing the lean accounting tools through replacing the wide production system by the lean production one in order to reduce wastage.
- the corporations subject of the sample survey must reduce wastage in the production process, identify and eliminate the waste and loss sources.
- the industrial corporations subject of the sample survey must involve the employees in the decision-making process in order to achieve their goals.
- conducting training courses for managers and employees at the corporations subject of the sample survey to match modern developments in terms of lean accounting methods.
- the corporations subject of the sample survey must set up clear and more detailed plans, relying on scientific foundations and ways contributing in cost reduction, with fixed goals and the administrations are committed to their implementation.

## REFERENCES

- Abdurrahman, A., & Ali Bedoun, M. (2002). *Methodology of Social Research*. Alexandria: Dar Al-Maarifa Al-Jamia.
- Abdurrahman, M., & Ahmed, R. A. (2013). The impact of using sustainable improvement on the university service efficiency. *The Journal of the College of Economic Sciences University, Baghdad*, 01(36).
- Al Bardini, K. W. (2014). *Resources Planning System and Just-in-Time Manufacturing System in Achieving Competitive Priorities*. Jordan: Magister Thesis, Faculty of Business, Middle East University.
- Al Moussoui, A. N., & Abbas, S. M. (2015). The use of Lean accounting tools in reinforcing the lean production systems and evaluating the performance of the Economic units. *AL KUT Journal of Economic and Administrative Sciences*, (17).
- Ali, I. E. (2017). *Target costing in applying the activity-based balance and its role in reducing costs in the industrial companies*. (Ph.D. Thesis). Faculty of Graduate Studies, Sudan University of Science and Technology, Sudan.

- Al-Kassab, B. A. (2019). *Complementarity between the targeting cost and product consumption accounting and its impact on cost reducing*. Iraq: Magister Thesis, Kerbala University.
- Azzemou, R. (2016). *Lean Manufacturing : Application to the Algerian Companies* . Faculty of Economic, Commercial and Management Sciences, University of Oran 2, Algiers: Ph.D Thesis.
- Barakat, N. M. (2006). *Statistical Analysis using SPSS*. Palestine: the Islamic University.
- Bouriche, M., & Ben Elba, M. (2021). The role of targeting cost and value analysis in reducing the product cost. *The Algerian Journal of Social and Human Sciences*, 09(01).
- Chalabi, A., & Aymen, T. (2021). The possibility of using targeting cost as a tool to lead the costing in the industrial corporates. *The Journal of Human Studies and Researches*, 06(03).
- DANDIS, H. A. (2018). *Challenges in Applying the Lean Manufacturing Principles in Palestinian SMEs*. (Magister Thesis). Faculty of Higher Education and Scientific Research, Al-Khalil University, Palestine.
- Dixit, A., & Dave, V. (2015). Lean Production System Future Approach. *International Journal OF Engineering Sciences & Management Research*, India, 2(6).
- Errouashda, A. A. (2011). *Cost Accounting*. Jordan: Kunuz Al-Maarifa Publishing and Distribution House.
- Hussein, H. A., & Mokdad, M. A. (2020). Adoption of Cost Stream Mapping and its Impact on cost reduction. *Journal of Human Sciences*, 08(04).
- Jasim, R., & Alobaidy, A. E. (2019). Integration of lean accounting techniques and balanced scorecard to evaluate the performance of economic units: An exploratory or applied study in Iraq. *Periodicals of Engineering and Natural Sciences*, 7(4).
- Kheraz, L. (2018). *Developing Innovation for the sake of sustainable improvement*. Algeria: Ph.D. Thesis, Faculty of Economic, Commercial and Management Sciences, AboubakrBelkaid University of Tlemcen.
- Kocamiş, T. U. (2015). Lean Accounting Method for Reduction in Production Costs in Companies. *International Journal of Business and Social Science*, 06(9).
- Kootanaee, A. J., & others, a. (2013). Just-in-Time Manufacturing System: From Introduction to Implement. *International Journal of Economics Business and Finance*, 1(2).
- Mohamed, S. A., & Mansour, F. E. (2014). Based-activity targeting and resources consumption accounting and their role in reducing cost in the industrial enterprises. *The Journal of Economic Sciences*, (02).
- Mustafa, H. T. (2008). *Assessment and Development of cost systems for supervision and decision-making*. (Ph.D Thesis). Faculty of Economic and Management Sciences, University Mentouri, Constantine, Algeria.



- Rabai, B. A. (2019). *Conception of Lean Manufacturing System by using the Value Stream Mapping and its Impact on improving productivity*. (Ph.D. Thesis). Faculty of Management and Economics, University of Kerbala, Iraq.
- Rajkhan, M. M. (2002). *The role of target costs in reducing the costs and developing the products*. (Magister Thesis). Faculty of Economics and Management, King Abdul Aziz University, Saudi Arabia.
- Tayib, K. M. (2017). *The Availability of fundamentals for applying lean accounting in the industrial enterprises in Gaza Bank*. Magister Thesis, Faculty of Commerce, Islamic University – Gaza, Palestine.
- Teixeira, H. F., & others, a. (2019). Lean Accounting: Economic-financial, Performance of Companies with Lean Manufacturing. *International Journal of Advanced Engineering Research and Science (IJAERS)*, 6(5).
- Womack, J. P., & Jones, D. T. (2003). *Lean Thinking: Banish Waste and Create Wealth in Your Corporatio*. New York: Simon and Schuste.