

REDUCING THE COSTS OF SUSTAINABLE DEVELOPMENT IN INDUSTRIAL COMPANIES (AN APPLIED STUDY)

Khaleel Radhi Hasan Alzly

Alfurat Alawsat Technical University, Technical Institute of Samawa

ins.khl2@atu.edu.iq - khlnb2016@gmail.com



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ABSTRACT

The research aims to reduce the costs of sustainable development through the use of strategic cost management methods, characterizing the cost system used to reduce costs in these companies, as well as studying the relationship between the use of modern methods of strategic cost management and reducing the costs of sustainable development, as well as studying the role of reduced costs in achieving the competitive advantage of companies. In addition to its role in assisting in making strategic decisions.

The research methodology relies on the deductive approach, which is the researcher relying on books, letters, dissertations, and scientific articles to enrich the theoretical aspect of the study, formulating the research problem and the research hypothesis, and the inductive approach through designing a questionnaire as a tool for the field study, which was distributed to workers in cement and brick factories in Al-Muthanna Governorate in Iraq. Where the number of the distributed questionnaire reached (200) questionnaires, 175 of which were retrieved, and the validity and reliability of the questionnaire questions and the correlation between all the axes of the questionnaire were calculated, and the values of the correlation coefficient were a statistical function at a significant level (0.05).

The most important findings of the researcher were the existence of a significant positive relationship between the use of strategic cost management methods and reducing the costs of sustainable development, as well as the existence of a positive significant relationship between reducing the costs of sustainable development and achieving competitive advantage and making strategic decisions for companies.

The most important recommendations were that there is a need to pay attention to reducing the costs of sustainable development by adopting strategic cost management methods in cement and brick factories in Al-Muthanna Governorate.

KEYWORDS

Strategic cost management, cost reduction, sustainable development.

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1. INTRODUCTION

As a result of the increasing interest in sustainable development by all countries, the interest in the dangers of pollution or environmental deterioration and social responsibility on economic units has increased due to industrial progress in addition to human behavior. The environmental and social dimension in addition to the economic dimension of industrial companies has become a distinctive event and an important topic that many address in their writings. The field of modern administrative, accounting and economic thought.

As a result of the international fear of the risks of environmental degradation, interest in sustainable development issues has increased at the local, regional and global levels. Governments and various international organizations have begun to charge environmental and social costs to companies and factories. Many binding laws and regulations have been put in place to implement sustainable development standards in these companies and factories. Here The problem of reducing the costs of sustainable development began to pose a challenge to accountants in these companies in order to preserve the company's reputation and maintain the company's competitive advantage in the local and international markets.

Sustainable development has important dimensions, which are the economic dimension, the social dimension, and the environmental dimension, in addition to the technological and institutional dimensions. It has become the basis for a new philosophy that governs the performance of industrial companies, which puts company managers in a new challenge in achieving high profits, and in turn, taking into account social responsibility towards society in reducing costs.

Through the foregoing, companies in developing countries in general and in Iraq in particular are facing a challenge in reducing the costs of sustainable development as a result of the mandatory directives of developed countries and the systems of international trade policies. Where these countries set standards on the level of products in terms of characteristics and specifications, as well as standards for production methods and methods used, and all companies must adhere to comprehensive quality standards and international standards that guarantee product quality, environmental safety, and compatibility with international standards of sustainability.

All this contributed to increasing the obligations and increasing the environmental costs borne by the industrial companies and has an impact on the competitive position of these companies, and the emergence of new challenges for accountants in how to reduce these costs, and therefore it is necessary to practice or use modern cost methods that help and contribute to reducing these costs and increasing the competitive advantage of these companies in the global and local markets.

2. RESEARCH METHODOLOGY:

2.1. RESEARCH PROBLEM:

Due to the adoption by many business organizations of the concept of sustainable development as a result of the rapid developments in the modern business environment, this led to the necessity of developing cost accounting systems and management accounting, and then the need to develop methods and methods used appropriate to the new reality of industrial companies and the competition market in order to keep pace with the rapid modern developments of the concept of sustainable development.

Accordingly, the research problem is represented in the inability of industrial companies to reduce the costs of sustainable development, due to the inability of traditional systems to address these costs, which are considered various and indirect costs. Therefore, the research problem is summarized in the following questions:

First question: Do the traditional cost systems in companies and factories help reduce the costs of sustainable development?

Second question: Does the application of modern methods and systems of costs help in reducing the costs of sustainable development?

Third question: Does reducing the costs of sustainable development contribute to achieving a competitive advantage for industrial companies?

2.2. IMPORTANCE OF RESEARCH:

The importance of the research lies in the urgent need to implement the sustainable development program in the Iraqi industrial companies at the present time in order to reduce the costs of sustainable development at the local and global levels. As the use of strategic cost management methods in order to reduce the costs of sustainable development is one of the important things that industrial companies need in the competition market in order to know these costs and how to reduce them while maintaining the quality of products, as well as assisting in planning and control, which leads to achieving sustainability.

It also leads to the expansion of academic studies among researchers in order to delve into this field in developing countries, including Iraq, due to the weakness of sustainable development in this country, whether at the economic, social or environmental level.

2.3. RESEARCH OBJECTIVES:

The main objective of this research is how to reduce the costs of sustainable development in industrial companies by using strategic cost management methods, and there are sub-objectives of the research summarized as follows:

1. Studying the relationship between strategic cost management methods and reducing the costs of sustainable development in Iraqi industrial companies.
2. Studying the relationship between reducing the costs of sustainable development and achieving the competitive advantage of Iraqi industrial companies.

3. Studying the relationship of reducing sustainable development and making strategic decisions in Iraqi industrial companies.

2.4. RESEARCH HYPOTHESIS:

The research is based on a main hypothesis:

There is an effect of strategic cost management methods in reducing the costs of sustainable development, achieving competitive advantage, and assisting in strategic decision-making in Iraqi industrial companies.

From this hypothesis, the following hypotheses are derived:

1. There is a significant relationship between the methods of strategic cost management and reducing the costs of sustainable development.
2. There is a significant relationship between reducing the costs of sustainable development and achieving competitive advantage.
3. There is a relationship between reducing the costs of sustainable development, making strategic decisions and improving the quality of industrial companies.

2.5. RESEARCH LIMITS:

- A. Spatial limits: The research is limited to conducting an applied study and comparison between each of the cement factories and the brick factories in Al-Muthanna Governorate / Iraq, due to the nature of the production operations carried out by these factories, which cause damage and pollution to the environment on the one hand, and the depletion of natural resources on the other hand. And through the use of strategic cost management methods, which are (activity-based costing, value engineering, target costing, benchmarking, continuous improvement, production on time, balanced scorecard, value chain).
- B. Temporal limits: The research covers the time period from 2014-2022 for the purpose of finding out the extent to which companies and factories are committed to applying sustainable development standards, applying laws and legislation to account for the costs of sustainable development, and the extent to which these companies are committed to disclosing environmental and social performance.

3. THEORETICAL FRAMEWORK OF SUSTAINABLE DEVELOPMENT:

3.1. THE CONCEPT OF SUSTAINABLE DEVELOPMENT:

The term sustainable development appeared for the first time in a publication issued by the National Union for Environmental Protection in 1980, but it was widely circulated only after it was reused in the report "Our Common Future" known as the "Brundtland Report" issued in 1987 by the World Environment Committee. and

development of the United Nations. The report defined sustainable development as "development that responds to the needs of the present without endangering the ability of future generations to meet their own needs." (International Commission for Development and Sustainability, 1989: 83).

Barbier defined it in a more general way, which includes the establishment of a social and economic system that guarantees support for achieving the following goals: an increase in real income, an improvement in the level of education, and an improvement in the health of the population. (Ismail, 2015: 44).

As for Robert Solow, he defined it as "not harming the productive capacity of future generations and leaving it on the situation inherited by generations." (Same source, 2015: 44).

Sustainable development was defined as "preserving opportunities for future generations, with a general idea that justice is intertwined between generations." (Khudair, 2015: 341).

Sustainable development was defined by the Food and Agriculture Organization of the United Nations in 1989 (FAO), where sustainability was defined as "managing and protecting the natural resource base and directing technical and institutional changes to ensure the permanent satisfaction of present and future human needs, provided that this development is protected (in the agricultural and forestry sector and residential resources (land, water, animal and plant genetic resources), while being environmentally harmless, technically appropriate, economically feasible, and socially acceptable (FAO, 1989:7).

And defined sustainable development at the United Nations Conference held in Rio Janeiro 1992 and emphasized that the human being is the cornerstone of sustainable development, with the necessity for people to have a healthy and productive life in a manner that is compatible with the environment, and justice is achieved when meeting the developmental and environmental needs of the present and the future (UNCED, 1992: 1).

Sustainable development for developed countries means a reduction in the level of consumption of energy and resources, while for developing countries it means employing resources in order to raise the standard of living for citizens and reduce poverty, and in a more comprehensive manner ensuring the development of per capita income in the future not less than the current generation. (Ciegis, R. 2008: 17).

3.2. SUSTAINABLE DEVELOPMENT GOALS: (ABDUL-GHANI, 2020: 423).

The 17 Sustainable Development Goals and 169 targets demonstrate the breadth and ambition of this global agenda. The aim of these goals and objectives is to continue the march of the Millennium Development Goals and to accomplish what has not been achieved within their framework. It is very important to point out that these goals and objectives are the result of public consultations and extensive contacts conducted over more than two years in all parts of the world with civil society and

other accompanying parties, in which special attention was paid to the voices of the poorest and weakest groups. The general objectives (United Nations, September 2015) included:

1. End poverty in all its forms everywhere.
2. Eradicating hunger, providing food security and improved nutrition, and promoting sustainable agriculture.
3. Ensure the enjoyment of healthy lifestyles and well-being for all at all ages.
4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
5. Achieving gender equality and empowering all women and girls.
6. Ensure the availability of water and sanitation services for all and their sustainable management.
7. Ensure universal access to affordable, reliable and sustainable energy services.
8. Promoting sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all.
9. Build resilient infrastructure, stimulate inclusive and sustainable industrialization, and encourage innovation.
10. Reducing inequality within and between countries.
11. Make cities and human settlements inclusive, safe, resilient and sustainable.
12. Ensure sustainable consumption and production patterns.
13. Take urgent action to address climate change and its impacts.
14. Conserving and sustainably using the oceans, seas and marine resources to achieve sustainable development.
15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss.
16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable and inclusive institutions at all levels.
17. Strengthening the means of implementation and revitalizing the global partnership for achieving sustainable development. It is worth noting that the goals and objectives are integrated and indivisible, achieving a balance between the three dimensions of sustainable development, and are intended to be implemented until 2030. They also confirm the results of all major conferences and summits held by the United Nations, which laid a solid foundation for sustainable development and contributed to the formation of this The new plan. These include the Rio Declaration, the World Summit on Sustainable Development, the World Summit for Social Development, and the Program of Action of the International Conference on Population and Development. (United Nations, September 2015).

3.3. DIMENSIONS OF SUSTAINABLE DEVELOPMENT:

There are many approaches and aspects to the study of sustainable development, but the various literatures in the field of economics all indicate that the concept of sustainable development emerges from its normative framework from three basic dimensions: economic and social development and environmental sustainability. Before dealing with these dimensions, we confirm that they converge and intertwine together in multiple fields. As for the other derived aspects, the most famous of them are the institutional aspect, the technological aspect, the administrative aspect, and the human development aspect, and these aspects also emerge from other branches aspects (Al-Kubaisi et al., 2019: 4-8).

The first dimension: focuses on the economic aspect to explain the concept of sustainable development, which is more profound as it focuses on the optimal use of resources to obtain the maximum benefits in light of preserving the diversity and use of resources and does not lead to a reduction in real income in the future. In this regard, developed countries are interested in reducing their consumption of energy and resources, while developing countries seek optimal use of resources in order to raise the standard of living of citizens and curb poverty, in other words ensuring the development of per capita income in the future so that it is not less than per capita income in the current generation. During the 1990s, the trend increased to include the environmental dimension in the field of economics, thus changing the concept of economic development from increasing the exploitation of scarce economic resources to satisfy multiple and renewable human needs to the concept of sustainable economic development, which does not prevent the intensive exploitation of economic resources such as water, oil or forests, but rejects The unfair exploitation of these resources so as to affect the share of future generations of these depleted or non-renewable resources, and the concept of pure economic development emerged that does not take into account the environmental dimension and is considered a subject of criticism from all circles and global economic institutions; To the extent that some called it “black development” (Al-Harbi, 2019: 5-6).

The economic dimension aims to continuously improve the level of quality of goods and services and achieve economic efficiency through the optimal use of resources. (Harries, Johthan, 2003: 2).

The second dimension: It is the social dimension, so it focuses on the human being and his mutual relationship, non-discrimination, and improving the standard of living through education, health, equality, and providing opportunities for freedom and political participation. In all cases, it is concerned with the government sector and civil society (Al-Juhani, 2015: 9).

Sustainability from a social perspective means focusing primarily on providing opportunities for access to decent work, public services, and how to achieve growth, which takes into account health issues, the elimination of epidemics and diseases, levels of poverty issues, education, training and social justice, and includes social development also of all kinds and the elimination of hunger, Shelter and quality of life

issues, social security, population growth, and the number of deaths, especially in the early stages of life.

The social dimension aims to achieve social justice in the distribution of economic and natural resources, respect for human rights, the development of cultures, diversity and participation in decision-making (Othman Muhammad, Magda Ahmed, 2007: 39).

The third dimension: focuses on the environmental aspect, which looks at sustainable development on the basis of the use of renewable natural resources, in a manner that does not lead to their annihilation, deterioration, or diminishing of their capacity for future generations, and to maintain a stable balance of natural resources that does not diminish.

The institutional dimension: It aims to pay attention to a number of issues, the most important of which are the institutional framework, the institutional capacity of the parties concerned with sustainable development, and the extent of commitment to implementing binding international agreements (Stefanie.2005,:81).

Technological dimensions: It aims to use cleaner and more efficient technology in industrial facilities, and to reduce emissions of gases and fuels that lead to global warming.

In view of the association of each of the economic, environmental and social dimensions with a group of activities, where economic activity generates economic costs, environmental activity environmental costs, and social activity social costs, and these costs are collectively called the costs of sustainable development.

3.4. THE CONCEPT OF COST REDUCTION:

Cost reduction can be defined as an attempt to reduce cost. Cost reduction implies a real and permanent reduction in the unit cost of goods manufactured or services rendered without prejudice to the suitability of their products for their intended use. (Devilal Sharma, 2017: 47).

Cost reduction is a process aimed at reducing the unit cost of a product being manufactured or providing a service without affecting its quality. This can be done by using new and improved methods and technologies, achieved through alternative methods to reduce the unit production cost. (<https://vmec.org/cost-reduction-strategies>).

Cost reduction aims to reduce the objectives themselves. In other words, the objective of cost reduction is to see if there is any possibility of savings in cost incurred, labor, overheads, etc. According to the cost accounting terminology of the Institute of Cost Accountancy and Management in London, cost reduction should be understood as the success of a real and unchanging reduction in unit costs of manufactured goods without affecting their suitability for their intended use. Thus, the term cost reduction refers to real or explicit savings in production, management, selling and sharing costs resulting from the elimination of wasteful and unnecessary elements from product design and from the technologies and practices implemented in connection therewith. The necessity of cost reduction arises when profit margin has

to be increased without increase in sales turnover, for the same volume of sales, cost has to be reduced. (Akeem, 2017: 22-23).

Cost reduction is not related to setting objectives and standards, but to improving standards. It is a continuous process that can be applied to all the activities involved. It focuses on two main areas:

1. Reducing expenses: A decrease in expenses in the specified production volume leads to a decrease in the unit cost.
2. Increased productivity: the general decrease in unit cost by increasing production for specific expenditures.

Cost reduction can be achieved by combining these factors. Moreover, it is somewhat difficult to know what contribution each factor has made to the increase in savings (increased profit for the firm).

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3.5. CLASSIFICATION OF SUSTAINABLE DEVELOPMENT COSTS:

There are many classifications of environmental costs from the point of view of environmental organizations and those interested in their costs, as it is possible to define the classification of environmental costs into three groups: (Al-Razzaq, 2012: 436).

- A. Environmental before production: It includes all the sacrifices incurred by the economic unit in the pre-production stage or the operation of the system, and includes the costs of equipment, product design, evaluation of equipment alternatives, and environmental protection measures.
- B. Periodic environmental costs during the operating stages: These include all costs incurred by the economic unit during the production and marketing stages of the product in order to improve the level of environmental performance, such as examination, measurement, evaluation and timely removal of damages.
- C. Dimensional environmental costs: It includes all costs that are confirmed as well as likely to occur in the future, such as the costs of waste treatment and disposal, the costs of environmental compatibility and compliance with environmental legislation.

3.6. REASONS FOR CARING ABOUT THE COSTS OF SUSTAINABLE DEVELOPMENT:

One of the studies adopted by the US Environmental Protection Agency (EPA) indicates that the reasons for concern about environmental costs are: Goetsch & Stanley, 2010: 339).

1. Many costs can be reduced or avoided because these costs do not add value to the products
2. These costs may be implicitly included in the indirect costs that are not ignored.
3. Reconsidering existing operating systems and understanding environmental costs helps the establishment to provide more accurate information to the establishment about environmental costs and pricing of its products, and then design products with better profitability specifications.
4. Achieving competition for the company's products by promoting products with better environmental specifications.
5. Understanding the environmental costs helps in supporting the environmental management system that many companies seek to develop as a means to obtain the ISO (14001) certificate related to the environment.

4. THEORETICAL FRAMEWORK OF STRATEGIC COST MANAGEMENT :

4.1. THE CONCEPT OF STRATEGIC COST MANAGEMENT:

Strategic cost management is an integrated approach that includes a set of tools and methods that integrate together to build and maximize the competitive position of companies in the competition market, help in decision-making, as well as improve the quality of products in industrial companies. There are many definitions of the concept of strategic cost management, including:

1. Cooper & Slagmulder defined it as “the management’s use of cost information to prepare and develop strategies and reduce costs in order to achieve a competitive advantage for the company” (Cooper & Slagmulder, 2003:23).
2. Wilson defined it as “representing one of the modern administrative approaches, which is concerned with analyzing cost in a broad framework, and using its information in formulating and developing strategies and choosing the best ones for differentiation and enhancing competitive advantage (Sorour, 2019: 3).
3. Anderson defined it as “analyzing, structure and behavior of the costs of the organization in the light of its strategic objectives and controlling its strategic performance in order to improve the decision-making process” (Anderson, 2005: 354).

4. Strategic cost management is a process through which the cost is tracked and controlled throughout the life cycle of the product in all its stages to reach the cost to the lowest possible level, with a focus on analyzing the elements of the internal and external environment of the company in order to provide products with specifications and characteristics that meet the needs of customers and reflect value to them from one point of view. Their vision is to improve the strategic position of the company and to create a continuous competitive advantage by using technical methods and tools to track and control costs. (Mahmoud, 2010: 15).
5. Strategic cost management is defined as “a cost analysis, but on a large scale, by paying attention to the strategic objectives, using cost data to reach the best strategies that help achieve competitive advantages for the company.” (Khalaf, 2004: 76).

Through the above definitions, we conclude that strategic cost management is a comprehensive approach that adopts tools and methods that work in an integrated and coordinated manner in order to support the competitive advantage of the company because it focuses on the following: (Ahmed, 2017: 31).

- A. Corporate strategy.
- B. Cost driving factors.
- C. Continuous cost reduction and competitive advantage.

4.2. THE OBJECTIVES OF STRATEGIC COST MANAGEMENT:

There are many goals for the strategic cost management approach, summarized as follows: (Khalifa et al., 2018: 474).

1. Focusing on the external environment and interacting with it to identify and respond to the renewed desires of customers, and monitoring the performance of cost management in other companies in order to address and confront competitors' threats and increase productivity.
2. Focusing on multiple analytical concepts that improve the strategic activities of the company, as these concepts provide a broader understanding of cost management due to its dependence on the strategic dimension of cost, and its various methods lead to improving profitability, rationalizing costs, and achieving competitive advantage.
3. Focusing on gaining customer satisfaction, achieving an increase in profits, and maximizing the company's competitiveness.
4. Activate the role of senior management in consolidating and supporting the achievement of the desired strategic objectives to improve the strategic position of the company.

4.3. THE IMPORTANCE OF STRATEGIC COST MANAGEMENT:

The importance of strategic cost management lies in the following: (previous source, 2018: 474).

1. Helps management to plan properly, whether in the short or long term.
2. Contribute to increasing the company's ability to face intense competition.
3. It helps the company to have a continuous competitive advantage.
4. Enables the company to use resources effectively.
5. Availability of opportunities for the participation of all administrative levels in the decision-making process.
6. Develop strategic thinking among managers and make them take the initiative to make events and not be recipients of them.

4.4. METHODS OF STRATEGIC COST MANAGEMENT:

The methods of strategic cost management work to reduce the costs of sustainable development in industrial companies through a set of methods that work with each other through the different stages of the product life cycle. These methods are: (Ahmed, 2017: 37) and (Khalifa et al., 2018: 476).

- A. The target costing method: It is a system that begins with designing the desired characteristics of the product and the appropriate price for the product, then the project activities are controlled, which helps to reach the allowable cost that enables the company to achieve its profits. This method works to reduce costs with an emphasis on ensuring the achievement of product quality, by studying all the ideas proposed to reduce costs during the early stages of the product's life (product planning design stage).
- B. The value engineering method: It is a systematic application of specific methods through which product functions are determined, the value of each function, and an attempt to reach the best job performance at the lowest cost. This method works to identify marginal jobs that do not add value to customers and get rid of them. It also provides the company with a modern way of thinking and dealing with the modern industrial environment by focusing on its most important stages, which is the design stage, through which at least 80% of the cost is pledged. Product cost.
- C. Activity-based cost method: It is a methodology for addressing indirect industrial costs by identifying the activities necessary to perform operations in the company, allocating resources to activities, and then reallocating activity costs to products according to the consumption of each activity. This method seeks to reduce costs and optimal use of available resources without extravagance. It takes a broader dimension through the analysis of activities, and thus it bypasses the drawbacks of traditional methods by providing detailed information about activities, costs and their causes, and excluding valueless activities.
- D. Just-in-time production method: It is a philosophy of inventory management, which focuses on policies, procedures, and attitudes by managers that result in the

efficient production of high-quality goods while maintaining the lowest possible level of inventory. This method works to reduce costs by getting rid of the quantities of inventory and reaching its lowest level, and as a result, the money invested in inventory decreases and the costs associated with this investment decrease. Optimum utilization of production capacity and without wastage.

- E. The method of total quality management: It is the concerted efforts of managers and employees in a distinct manner to achieve the expectations of customers, by focusing on the quality of performance in the first stage, in order to reach the required quality at the lowest cost and the least time. This method works to reduce costs by searching for high levels of quality that lead to lower costs and getting rid of defective production, which will undoubtedly cost the company additional costs, so the total quality management method is the essence of the reduction process that leads to cost reduction without compromising the quality the product.
- F. Benchmarking method: It is the process by which the company's performance is compared with other companies with outstanding performance in the same sector. This method works to reduce costs by adopting some of the methods used by competitors in managing costs, and this method is an incentive and a catalyst for generating ambition in the company's management for the purpose of reaching the level of competition with other companies.
- G. The balanced scorecard method: It is a tool to stimulate the performance of the business unit by focusing on four main perspectives, including the financial perspective, the customers perspective, the operations perspective, and the education and growth perspective. New perspectives have been added to the balanced scorecard, namely the risk perspective and the societal perspective, to become six perspectives, which gives a balanced picture of the current operating performance and the causes of future performance.

The balanced scorecard method seeks to reduce costs in all its dimensions by reducing waste of resources, reducing costs, providing high quality products, focusing on the production process, innovation and development of products according to the wishes of customers and within the appropriate time.

The following figure shows the methods of strategic cost management:



Figure 1. Methods of strategic cost management. (Source: Prepared by the researcher)

4.5. RESEARCH TOOLS:

A questionnaire was designed for the purpose of obtaining appropriate and accurate answers, and the following matters were taken into account when designing the questionnaire:

1. A five-point Likert scale was used and weights were given to the answers as follows:
(Strongly agree 5, agree 4, neutral 3, disagree 2, strongly disagree 1).
2. The reliability was tested by calculating the alpha value of the variables, and all of them were greater than (0.9), and this indicates the consistency of the variables.
3. The validity and reliability of the questionnaire was calculated according to the correlation factor (Pearson) between all the axes of the questionnaire, and the values of the correlation factor were at the level of significance (0.5).
4. The SPSS program was approved for data analysis.

4.6. THE STUDY POPULATION AND THE STUDY SAMPLE:

Cement factories and brick factories were selected in Al-Muthanna Governorate / Iraq. (200) questionnaires were distributed, and the number of questionnaires retrieved from them was (175) questionnaires.

The following table shows the number of questionnaires distributed and the percentage of each:

Table 1. Forms distributed to workers in laboratories

Samples	Number	Ratio
Cement plants	95	54%
Bricks plants	80	46%
Total	175	100%

The previous table shows the following:

1. The number of correct questionnaires for cement plants is (95), with a rate of 54%.
2. The number of correct questionnaires for the brick plants is (80), with a rate of 46%.

4.7. RESULTS OF HYPOTHESIS TESTING:

First Hypothesis: There is a relationship between the use of strategic cost management methods and the reduction of sustainable development costs:

Table 2. Choose the simple regression coefficient to determine the effect of using strategic cost management methods in reducing the costs of sustainable development

Samples	Pearson correlation factor	Regression factor	Difference
Cement plants	0.975	0.963	0.037
Bricks plants	0.980	0.975	0.025

Table 3. ANOVA analysis of variance

Samples	Freedom degree	F value	Sig.	Ratio of Regression	Difference Ratio
Cement Plants	1 94	1665.592	0.000	96.3%	3.7%
Bricks Plants	1 79	3330.126	0.000	97.5%	2.5%

Through the simple regression analysis table, we find that the value of the correlation factor between the two variables is (0.975) for the cement plants, and (0.980) for the bricks plants. It is a significant value at the level of significance (0.05) and at the level of significance (0.000). Through the results of the regression factor, we find that there is a direct relationship between the methods of strategic cost management and reducing the costs of sustainable development by (96.3%) for the cement plants and by (97.5%) for the brick plants. Significance level (0.05).

This confirms the significance of the regression. Thus, we conclude that the strategic cost management methods work to reduce the costs of sustainable development in each of the cement and brick plants.

Second Hypothesis: There is a relationship between reducing the costs of sustainable development and achieving competitive advantage:

Table 4. Testing the simple regression coefficient to determine the effect of achieving competitive advantage in reducing the costs of sustainable development

Samples	Pearson correlation factor	Regression factor	Difference
Cement plants	0.948	0.935	0.065
Bricks plants	0.984	0.952	0.028

Table 5. ANOVA analysis of variance

Samples	Freedom degree	F value	Sig.	Ratio of Regression	Difference Ratio
Cement Plants	1 94	6010.512	0.000	93.5%	6.5%
Bricks Plants	1 79	5435.510	0.000	95.2%	2.8%

Through the simple regression analysis table, we find that the value of the correlation between the variables amounted to (0.935) for the cement plants and (0.952) for the brick plants at the level of significance (0.05) and the level of significance (0.000). By determining the regression factor, we find that there is a direct and significant relationship between Achieving the competitive advantage and reducing the costs of sustainable development by (93.5%) for the cement coefficient and (95.2%) for the brick factor, at the level of significant significance (0.05), depending on the F value, which reached (6010.512) for the cement plants and (5435.510) for the plants of bricks.

Thus, we conclude that reducing the costs of sustainable development leads to achieving a competitive advantage for each of the cement and brick plants.

Third Hypothesis: There is a relationship between reducing the costs of sustainable development and making strategic decisions:

Table 6. Testing the simple regression coefficient to determine the impact of strategic decision-making in reducing the costs of sustainable development

Samples	Pearson correlation factor	Regression factor	Difference
Cement plants	0.945	0.924	0.076
Bricks plants	0.979	0.965	0.035

Table 5. ANOVA analysis of variance

Samples	Freedom degree	F value	Sig.	Ratio of Regression	Difference Ratio
Cement Plants	1 94	320.722	0.000	92.4%	7.6%
Bricks Plants	1 79	4325.120	0.000	96.5%	3.5%

Through the previous table for simple regression analysis, we find that the value of the correlation factor for the cement plants was (0.945) and for the brick plants was (0.979) with a significant (0.05) and at the level of significance (0.000), and through the results of the regression factor we find that there is a direct relationship between taking Strategic decisions and reducing the costs of sustainable development, as the percentage reached (92.4%) for cement plants and (96.5%) for brick plants, with a significant (0.05) and at the level of significance (0.000), depending on the value of F, which amounted to (320.722) for cement plants, amounting to (4325.120). for brick plants.

Thus, we conclude that reducing the costs of sustainable development leads to assistance in making strategic decisions for each of the cement and brick plants.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1. CONCLUSIONS:

1. There is a direct relationship between the methods of strategic cost management and reducing the costs of sustainable development in industrial companies.
2. There is a direct relationship between reducing the costs of sustainable development and achieving the competitive advantage of industrial companies.
3. There is a direct relationship between reducing the costs of sustainable development and making strategic decisions in industrial companies.
4. Reducing the costs of sustainable development in the Iraqi industrial environment is important and leads to raising the level of quality of products and achieving an increase in the competitive process between companies.
5. Assisting senior management in making strategic decisions for the purpose of achieving sustainable development at the lowest costs, which achieves long-term benefits.
6. Reducing the costs of sustainable development requires working as one team within companies and building a good relationship between managers and employees, which serves to achieve the goal of sustainability.
7. The existence of a good cost system through the use of modern methods that are in line with developments that have taken place in the contemporary business environment leads to a reduction in the costs of sustainable development.

8. Adopting the achievement of sustainable development requires the state to put in place laws and legislations that are binding to protect and preserve the environment, as well as preserve natural resources and encourage factories to achieve sustainable development through the use of modern and environmentally friendly equipment.

5.2. RECOMMENDATIONS:

1. The senior management of industrial companies should use modern cost strategic management methods to reduce costs, because these methods provide accurate, reliable and timely information that helps management in making various decisions and achieving competitive advantage.
2. The senior management should provide adequate support to the departments to ensure the achievement of sustainable development practices, with the aim of raising production efficiency, improving the quality of products and reducing their costs.
3. Work to intensify academic and applied research and studies on the methods of strategic management of modern costs, due to their ability to reduce the costs of sustainable development and keep abreast of developments that have taken place in the contemporary industrial environment.
4. Workers in all departments must be trained in order to raise awareness of the importance of sustainable development at the state level and at the level of economic units.
5. Holding courses, conferences and workshops, which helps in creating sustainable awareness among all officials, workers and citizens, which helps in solving many economic, environmental and social problems.
6. Integrating the economic, environmental and social dimensions of sustainable development in factories, which leads to a comprehensive improvement in production processes and the preservation of the environment and the social environment.
7. The need to improve and develop production systems and techniques by defining product specifications that meet the economic, environmental and social requirements and fulfill the desires of customers, and then compare them with the production standards of international factories and benefit from their experiences.

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