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Management Techniques and Their Role in Supporting Sustainable Development an Analytical Study of The Opinions of a Sample of Industrial Professionals in The City of Kirkuk

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ABSTRACT: The research aims to identify the concept of a sustainable environment, its objectives, indicators, and aspects of developing its objectives to reach efficiency in the system related to the relationship of living organisms with the components of the environment, as well as the concept of cost management techniques, their types, areas of use, and how to benefit, through a systematic framing of the orientation of the world and the surrounding environment to how to preserve The available resources and how to dispose of them for the sake of prosperity and the preservation of resources for future generations were based on a questionnaire distributed to industrial professionals in the city of Kirkuk during the year 2023 (65 questionnaires), and the data was analyzed by the statistical program SPSS 23.The research came out with a number of conclusions, the most important of which is the need to take care of sustainable development as a strategic goal not only with regard to the economy but for all social, environmental, and political levels, in addition to the existence of a correlation and impact between cost management techniques and sustainable development. The research also presented a set of recommendations, perhaps the most important of which is paying attention to sustainable development as a goal that develops society through the behavior of its members and preparing various plans that include the environment, society, and people together within a comprehensive future strategic plan for multiple stages.

KEYWORDS: cost management techniques, sustainable development.

INTRODUCTION:

Sustainable development has received great global attention, with the United Nations holding many conferences about it. One of the most important of these conferences was the 1992 Earth Summit in Rio de Janeiro, Brazil, on June 3. Its goal was to pay attention to the environment and progress, and the summit's message was "nothing less than... changing and modifying our behavior and actions, and this message expresses the complexity of the problems facing us: poverty and excessive consumption that cause certain damage to the environment, which forces us to redirect national and international plans and policies to ensure that all economic decisions take into account environmental impacts, which has made ecological efficiency the responsibility of governments and activities. This was followed by many conferences, including the final document of the United Nations Conference on Sustainable Development in 2012, which included the document entitled "The Future We Aspire to." Thus, we have a great duty, which is to harness all the sciences related to sustainable development, including the science of accounting and cost management. To assist in implementing related economic decisions.

Cost management has currently witnessed great demand by researchers because it is a practical translation of reducing costs without compromising the quality of the products and services provided. On the contrary, it has paid attention to quality as another basis for cost management and facing other costs as a result of failure to prepare a product or service that satisfies the customer. It has also helped improve... The capabilities of workers and management in implementing the plans drawn up.

RESEARCH METHODOLOGY

Research Problem:

The failure of industrial companies to adopt cost management techniques will affect ecological efficiency and contribute to supporting sustainable development. Therefore, the problem can be formulated as the following question:

(To what extent can cost management techniques contribute to achieving efficiency in industrial work and supporting sustainable development goals?), including:

a- To what extent does ABM contribute to supporting sustainable development goals?

b- To what extent does the Theory of Constraints (TOC) technique contribute to supporting sustainable development goals?

c- To what extent does total quality management (TQM) contribute to supporting sustainable development goals?

The Importance of Research:

The world is currently turning to how to preserve its environment and the resources available to it and how to dispose of them for the sake of well-being and to preserve resources for future generations in what is called sustainable development. The United Nations has begun to gather world leaders and discuss with them how to improve living on planet Earth, and it has named its first conference related to sustainable development. The Earth Summit was held because of the importance of that conference for the current and future lives of human beings. Conferences followed later to follow up on the implementation of the Earth

Summit and urge the advancement of mechanisms that guarantee a decent life for human beings, preserve the current environment, and develop it for future generations.

Research Objectives:

The research aims to:

a- Identifying the concept of a sustainable environment, its goals, indicators, and aspects of developing its goals to achieve efficiency in the system related to the relationship of living organisms with the components of the environment

b- Learn about the concept of cost management techniques, their types, and their areas of use.

c- How to benefit from cost-effective techniques in achieving sustainable development goals

Default Search Form:

The hypothetical plan for the research was built through the correlation and influence relationship between the main study variables represented by (cost management techniques, sustainable development). Figure 1 shows the hypothetical plan for the research, which can be illustrated with the diagram below.

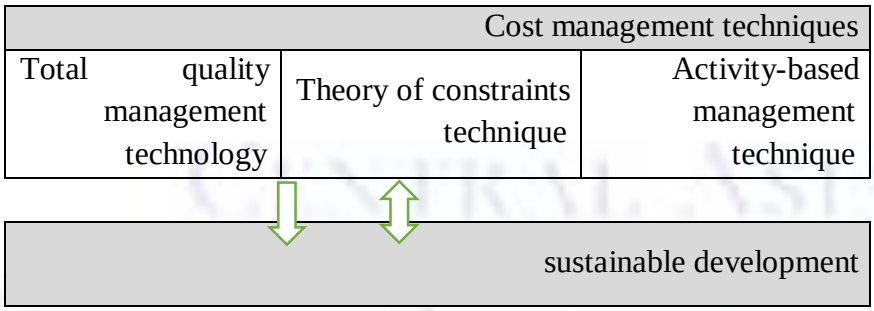

Figure (1) Default search model

Research Hypotheses:

The research was based on the first main hypothesis, which states that there is no correlation between the use of cost management techniques and sustainable development goals, from which the following hypotheses branch:

a- There is no correlation between ABM and the Sustainable Development Goals.

b- There is no correlation between TOC and the Sustainable Development Goals.

c- There is no correlation between total quality management (TQM) technology and sustainable development goals.

The second main hypothesis states that there is no impact relationship between the use of cost management techniques and sustainable development goals, and the following hypotheses branch out from it:

a- There is no relationship between ABM and the SDGs.

b- There is no impact relationship between TOC and the Sustainable Development Goals.

c- There is no impact relationship between Total Quality Management (TQM) technology and sustainable development goals.

Research Sample:

The target sample for the research included owners of industrial professions in the city of Kirkuk, who were chosen because they practice cost management techniques and have a clear vision of the available

resources. Accordingly, the two researchers distributed 72 questionnaires to all the individuals surveyed, and 65 questionnaires were retrieved suitable for statistical analysis, i.e., this represents 90.2% of the total distributed questionnaires, which is a good percentage for conducting analysis.

LITERATURE REVIEW

First: Cost Management Techniques:

There are many cost management techniques that are currently widely used and are in line with the economic environment. Our need for them is how to use these techniques in a way that enhances the project objectives and reaches a certain quality or appropriate cost for a specific product. Thus, these techniques simulate reality and provide the economic environment with what it needs to reduce waste. In capacity, increasing operational efficiency, increasing the level of performance, searching for comprehensive quality and continuous improvement of the quality of the product and its related processes and their performance, determining specific conditions that help reduce cost and loss, increasing customer satisfaction, and making reference comparisons that clarify the methods that must be followed to manage the cost and increase the performance of the products and services provided Therefore, cost management does not mean reducing costs but rather using those costs to the maximum possible benefit in order to achieve goals.

Cost management techniques are divided into types, some of which are concerned with internal operations and how to increase the contribution of outputs and reduce investment costs and other operating costs, such as energy management techniques, continuous improvement, ABM and benchmarking techniques, and some that take into account operational processes with controlling conditions through the supply chain, such as JIT, some of which take into account market prices over other methods of product pricing, such as target costing, some of which take into account the customer and operations together, such as quality costs and comprehensive quality management, and some of them concerned with evaluating performance and overall performance, such as the balanced scorecard, which assumes the existence of interconnected relationships between learning and growth, and between internal processes and Customer satisfaction in order to reach the organization's profit goal, and others are concerned with the price of their innovative product and how to reduce its costs during the product cycle. The researchers will currently be interested in three important techniques, which are:

1- ABM Activity-Based Management Technique:

This technique depends on dividing business objectives or production or service centers into activities. Each activity accomplishes a specific task, and the sum of the activities produces the required product or service. Thus, the activities represent the total cost vectors for that product or service.

Activity is defined (Horngren et al., 2012; 835) as (an event, task, or unit of work for a specific purpose" and in its relationship to the process as "repeated work performed to accomplish the work function" (Barfield et al., 2003; 132); Hansen & (Mowen, 2003; 122). Activity is a movement taken or an action performed by a machine or an individual for other individuals. We can learn about activities by interviewing managers or representatives of functional work sites. This interview uses the data used to prepare a dictionary of the activities used and restrict the activities to the economic unit and the important characteristics of each activity, with the aim of identifying the activities and their resources and knowing the costs spent on them.

The Activity-Based Management Technique (ABM) "focuses on the activities that occur during the production or performance process in order to improve the value received by the customer and the resulting

profit we achieve by providing this value" (Barfield et al., 2003; 148). Technique for Activity-Based Management It carries out its responsibilities "by describing activities, then analyzing and evaluating them, identifying their resources, and then analyzing the directions of those activities."

a- Describe And Define Activities

We can define activity analysis as a process of distinguishing, describing, and evaluating the activities performed by the facility. When analyzing activities, we can identify four outcomes, which are represented by knowledge (Hansen & Mowen, 2003, 389):

(1) Activities carried out

(2) The number of individuals performing it

(3) The time and resources required to perform those activities

(4) Assess the value of activities to the organization and provide advice to select and maintain only activities that add value.

The first three outputs are to identify the activities used and their resources.

b- Analysis of activities

The basic component of the activity-based management technique is the analysis of activities. It is also a study of activities, classifying them, and devising ways to reduce or eliminate activities that do not add value. This is explained by the fourth output, which identifies the added value contained in the activities. One of its concerns is cost reduction, and it classifies activities as adding value. Others do not add value.

One of these concepts is proposed by Hansen & Mowen (2003; 389): Activities that add value are activities necessary for the survival of the business, and they are necessary either because they are subject to legal requirements or because they are optional activities, and they add value through their fulfillment of three conditions:

(1) To cause a change in status.

(2) The change in status is not due to prior activities.

(3) The activity enables us to perform other activities.

2. Theory of constraints

We can define the theory of constraints as “an approach that is directed towards maximizing profitability through management that focuses on or is concerned with addressing bottlenecks or constrained resources” (Hilton; 1999; 244), and a constraint is a condition or limits for a specific business that needs to fulfill the condition or expand or change the limits to eliminate them. Of which.

The restrictions may be legal, personal, or industrial. In the technology we are considering, industrial restrictions specify specific activities in terms of their capacity (outputs) within a series of activities whose outputs depend on others. These restricted activities restrict the outputs of other activities that rely on them to dispose of their outputs, which allows the accumulation of the activities’ outputs. Which precedes the restricted activities due to the lack of energy for the restricted activities. In the theory of constraints, we can identify three metrics that we need as information for the implementation mechanism: (Horngren et al., 2012:686–687)

Output contribution: which equals the value of sales minus the direct material costs of the goods sold.

Investments (inventory): the value of inventory costs (raw materials, in-process manufacturing inventory, and final production inventory), R&D expenses, and equipment and facility expenditures.

Other operational expenses: All operating costs other than direct materials that occur in order to accomplish the output contribution, as well as other operating costs such as salaries, wages, rent, and wear and tear.

The Theory of Constraints seeks to maximize production contribution while decreasing investments and operational expenses. The Theory of Constraints, like the Theory of Constraints, is focused with the near term and believes that operational expenses are fixed. Hilton (1999) depicts the stages used in controlling the operational processes that indicate bottlenecks:

1) Recognize that the operational process that constitutes a bottleneck influences the overall system's output contribution.

2) Identify the bottleneck operation by recognizing operations with high volumes of inventory that are waiting to be operated.

3) The operational procedure that constitutes a bottleneck or a busy bottleneck regulates all other operating processes. The factory must optimize the contribution margin (output) of the designated and controlling resource in order to maximize operational profits. The third stage implies that the machine that constitutes a bottleneck must be replaced. It is constantly operational, therefore there is no need to wait for operating orders. Companies frequently retain a modest safety stock of operation orders waiting on the bottleneck machine to achieve this purpose. The bottleneck machine sets the starting point and operating speed of all running machines. It does not constitute a bottleneck.

4)Taking measures to increase the efficiency and energy of the operating process, which represents a bottleneck, and the goal is to increase the difference between the output contribution and the differential costs resulting from increased efficiency and energy.

3. Total Quality Management

The concept of quality goes back to the Latin word “qualities,” which means the nature of a person or the nature of a thing and the degree of its solidity. There have been many definitions of comprehensive quality, depending on its outlook and the development of its concept. The American Society for Quality defined it as “the overall appearance and characteristics of the product (service or commodity) that appear and reflect the ability of this product to satisfy explicit, overt, and implicit needs." (Majid and Al-Zayadat, 2007, 16).

a-Importance of Quality

Quality is of great importance in determining the volume of demand, as it represents the most important basic factors for increasing it, and it is evident in the following points (Alwan, 2009, 30-32):

The company's reputation stems from the high quality of its products, as evidenced by the organization's relationships with suppliers and employees, their experience and skill, and the provision of products that meet the desires and needs of the organization's customers.

Legal obligation for quality: The number of courts that hear and rule on cases involving corporations who create and deliver items that are subpar in terms of manufacturing and distribution is growing all the time.

Global competition: Changes at all political and economic levels have a significant impact on how and when items are exchanged in a competitive worldwide market. Quality is becoming increasingly important as both institutions and society strive to acquire it in order to compete globally and enhance the economy in general.

4. Consumer protection: Quality applies to the organization's activities, where specific standard specifications are established that contribute to protecting the consumer from commercial fraud and enhance confidence in the organization's products..

b- Costs of Quality

Quality costs refer to those costs that occur to prevent (or arise as a result of) the production of a low-quality product. (Horngren et al., 2012:673) and other researchers classified these costs into four groups:

Prevention costs: These are the costs that occur to prevent products that do not meet specifications.

Evaluation costs: These are the costs that occur to discover those individual units of the product that do not meet specifications.

Internal failure costs: These are the costs that occur when a defective product is discovered before it is shipped to customers.

Dr. External failure costs: These are the costs that occur when a defective product is discovered after it has been shipped to customers.

Table 1: Quality costs

Prevention costs	**Appraisal costs**	**Internal Failure Costs**	**External Failure Costs**
Design engineering Process engineering Supplier evaluations Preventive equipment maintenance Quality training Testing of new materials	Inspection Online product manufacturing and process inspection	Spoilage Rework Scrap Machine repairs Manufacturing/ Process engineering on internal failures	Customer support Manufacturing/ process engineering for external failures Warranty repair Costs Liability claims

Charles T. Horngren; Srikant M. Datar; Madhav V. Rajan: from Prentice Hall: 2012:p.695

Second: Sustainable Development Concept, Goals And Indicators:

This axis explains what is meant by development, the meaning and concept of sustainable development, and the conferences that were held for the purpose of agreement and cooperation between countries to adopt and achieve their goals and advance society towards prosperity and a decent life.

1- The Concept Of Sustainable Development:

It is based on the Portland Commission's 1987 "Our Common Future" report, which essentially states: "Sustainable development is one that meets the needs of the present without compromising future generations' ability to meet their own needs." This term was authorized by the Assembly. The United Nations General Assembly wields political clout, as evidenced by the creation of sustainable development concepts in 1992 by leaders and important decision-makers at the United Nations Conference on Environment and creation (WCED) in Rio de Janeiro (Mubarak, 2016, 15).

Sustainable development is defined as the optimal exploitation of available natural resources and human and material energies with the experience and knowledge possessed by residents of the development process in order to achieve well-being for the current generation and future generations that follow (Sherif et al., 2022, 15). Others believe that the concept of sustainability is a planned and purposeful process that plays It plays a prominent role in overcoming obstacles, designing policies, and adopting strategies with a

more comprehensive and balanced vision, which contributes to the rationalization of the use of scarce resources and provides a decent life for current and future generations (Jassam and Naji, 2023, 288). Based on the above, the researchers see that it is an interconnected process between the environment and the economy. And meeting in the optimal exploitation of resources, which every individual must bear within society to ensure the rights of future generations to achieve justice.

2- Sustainable Development Goals

Although the SDGs are not legally binding, governments are expected to take ownership and establish national frameworks for achieving them, so states bear the primary responsibility for monitoring and reviewing progress, which requires the timely collection of qualitative data (Jassar, 2021, 14–16).

Goal 1: Eradicate poverty. Hunger and malnutrition are two manifestations, as are limited access to education and other essential services, societal discrimination, social marginalization, and a lack of participation in decision-making.

Goal 2: Zero Hunger: Farms, forests, and fisheries can provide nutritious food for all, generate decent sources of income, support people-centered rural development, and protect the environment.

Goal 3: Good health and well-being: Health deterioration can be avoided through preventive treatment, education, immunization campaigns, and sexual and reproductive care.

Goal 4: Quality Education: Obtaining quality education constitutes the basis for improving people's lives, achieving sustainable development, and increasing school enrollment rates, especially for women and girls.

Goal 5: Gender Equality: Despite progress toward gender equality under the Millennium Development Goals, women and girls continue to face discrimination and violence in every area of the world.

Goal 6: Clean Water and Hygiene: Clean and accessible water for all is a critical component of the world we wish to live in. There is enough fresh water on the earth to fulfill this desire.

Goal 7: Clean and affordable energy: Energy is key to every significant concern confronting the globe today, as well as every opportunity. Universal energy access is critical for jobs, security, climate change, food production, and higher revenue. **Goal 8: Work with integrity and grow the economy**. The continued lack of decent work opportunities, insufficient investment, and underconsumption lead to the erosion of the basic social contract on which democratic societies are based: the requirement for everyone to participate in progress.

Goal 9: Industry, Innovation, and Infrastructure: Infrastructure investment—transportation, irrigation, energy, and information and communications technology—is crucial to ensuring sustainable development and empowering populations in many countries.

Goal 10: Reduced inequalities: The international community has made great progress in assisting individuals to escape poverty. The most vulnerable countries—LDCs, landlocked developing countries, and small island developing states—continue to struggle to alleviate poverty.

Gal 11: Sustainable cities and communities: Cities are hubs for ideas, trade, culture, research, production, and social growth, among other things. At their finest, cities enable people to progress socially and economically.

Goal 12: Consumption and Production: Sustainable consumption and production patterns relate to encouraging resource and energy efficiency, sustaining infrastructure, providing access to basic services,

providing decent and environmentally friendly work opportunities, and improving the quality of life for the benefit of all.

Goal **13: Climate Change**: Climate change currently affects every country on any continent. Climate change disrupts national economies, affects types of life, and imposes financial burdens on people, societies, and countries, often and more often than not, tomorrow.

Goal 14: Conserve aquatic forms: The world's oceans—their temperature, chemistry, currents, and life—are behind the global systems that make planet Earth habitable for humanity.

Goal 15: Preserve wildlife: Forests cover 30 percent of the Earth's surface, and in addition to providing food security and shelter, they are an important component of combating climate change and protecting biodiversity and the homelands of indigenous peoples.

Goal 16: Peace, Justice, and Strong Institutions: Without peace, stability, human rights, and effective governance based on the rule of law, we cannot hope for sustainable development. We live in a rapidly dividing world.

Goal 17: Partnerships to achieve the goals: A successful sustainable development plan necessitates collaboration between governments, the private sector, and civil society. These comprehensive collaborations are founded on common ideas, values, vision, and goals that prioritize people and the environment.

PRACTICAL RESULTS

First: Coding The Search Criterion:

The variables under study, represented by cost management techniques, were coded as an independent variable, with its dimensions including activity-based management technique (ABM), theory of constraints technique (TOC), total quality management technique (TQM), and sustainable development, which was solved as a dependent variable, as in Table 2:

Table (2) Research scale coding

Number of paragraphs	code	The dimension	Number of paragraphs	code	variable
5	ABM	Activity-based management technique	15	X	Cost management techniques
5	TOC	Theory of constraints technique			
5	TQM	Total quality management technology			
6	SD	sustainable development	6	Y	sustainable development

Source: Prepared by researchers.

Second: Testing The Validity Of The Research Measurement Tool (Cronbach's Alpha Test):

Cronbach's alpha values vary from zero (a tool with no reliability) to one (a tool with perfect reliability). If the scale has a high dependability, it implies that the scale's items are stable, and hence the scale is stable. However, if the dependability is poor, it indicates that there is one on the way. The scale's lowest items or phrases are not stable because their internal consistency is poor, and they do not meet the

necessary degree of dependability, thus they should be recognized and treated by removing the paragraph or phrase from the analysis.

We find from Table 3 that the value of the Cronbach's alpha coefficient for the dimensions of the research variables ranged between (0.971 and 0.915), as it is clear that it is greater than 0.60. This indicates that the reliability coefficient of the measurement tool has a high degree of acceptability and stability.

Table (3) Cronbach's Alpha test for the research variables

Dimensions	Number of paragraphs	Test Cronbach's Alpha
Cost management techniques	15	0.971
Activity-based management technique	5	0.945
Theory of constraints technique	5	0.938
Total quality management technology	5	0.915
sustainable development	6	0.960

Source: Prepared by the researchers based on the outputs of the SPSS 23 program.

Third: Analyzing Descriptive Statistics And Presenting And Analyzing The Results In Light Of The Answers Of The Researched Sample:

This paragraph will use the mean to determine the reality of the independent variable represented by cost management techniques as an independent variable with dimensions including activity-based management technique (ABM), theory of constraints (TOC) technique, total quality management (TQM) technique, and sustainable development as the dependent variable. Arithmetic, It is the most essential measure of central tendency, is the most well-known and significant in many ways. The arithmetic mean represents the value around which all of the variable's different values are centered; the standard deviation, which is one of the most important statistical measures of dispersion; and the coefficient of variation, which is used to compare dispersion; the lower the value, the less dispersion of the sample's answers. The importance is prioritized based on its basis in light of the findings, and finally, the level of reaction to the opinions of the sample questioned is decided based on the five-point Likert scale in light of the sample's replies to the questionnaire items is as follows:

1. Cost management techniques:

a- Dimension of ABM activity-based management technique:

Table (4) displays the arithmetic mean, standard deviation, coefficient of variation relative to the items, and level of responsiveness to the sample's viewpoints. The results showed that the highest value was when asked with an arithmetic mean (3.5692) and a good level with a standard deviation (1.274), as its coefficient of variation (0.357). When questioned, the lowest value was when it said (ABM technology assists organizations in obtaining thorough information that aids in product development) with a mean (3.2308) and a standard deviation (1.411). as its coefficient of variation reached (0.437). Overall, the ABM dimension achieved a mean (3.3477) with a good level and a standard deviation (1.231).

Table (4) shows the arithmetic mean and standard deviation of the surveyed sample's answers regarding the activity-based management technique dimension.

PARAGRAPHS		MEAN	STANDARD DEVIATION	Coefficient variation	Answer level
1	ABM technology is one of the accounting tools for cost management, in which we can divide activities into ones that add value or do not add value, so that the costs of the activities are reduced or eliminated.	3.5692	1.274	0.357	I agree
2	ABM technology helps reduce costs only by dividing activities into adding value or not adding value	3.3385	1.406	0.421	neutral
3	ABM technology helps increase economic indicators because it is a technology that helps conserve resources	3.3077	1.321	0.399	neutral
4	ABM technology helps companies obtain detailed information that helps in product development	3.2308	1.411	0.437	neutral
5	ABM technology is consistent with sustainable development as it contributes to increasing economic, social and environmental indicators	3.2923	1.377	0.418	neutral
MEAN		3.3477	1.231	0.368	neutral

Source: Prepared by the researchers based on the outputs of the SPSS 23 program.

b. Dimension of the Theory of Constraints technique:

Table 5 displays the arithmetic mean, standard deviation, relative coefficient of variation for the items, and the level of responsiveness to the sample's viewpoints. With an arithmetic mean of 3.3538, the findings showed that the greatest value was when questioned (the theory of limitations only assists in decreasing costs by reducing the expenses of prohibited activities). When asked, the theory of constraints agrees with sustainable development because it contributes to increasing economic, social, and environmental indicators at a good level and with the lowest standard deviation (1.292), as its coefficient of variation reached 0.385, and with an arithmetic mean of 3.2615. It had a coefficient of variation of (0.403) and a standard deviation of (1.314), but overall, utilizing the Theory of Constraints method, it had an arithmetic mean of (3.3046) and a respectable standard deviation of (1.188).

Table (5) shows the arithmetic mean and standard deviation of the answers of the sample studied around Following the Theory of Constraints technique

PARAGRAPHS		MEAN	STANDARD DEVIATION	Coefficient variation	Answer level
1	The theory of constraints is one of the accounting tools for cost management, in which we can determine the impact of constraints on costs or outputs	3.3385	1.372	0.411	neutral
2	The theory of constraints helps reduce costs only by reducing the costs of constrained activities	3.3538	1.292	0.385	I agree
3	The theory of constraints helps increase economic indicators because it conserves resources	3.2769	1.352	0.413	neutral
4	The theory of constraints helps in increasing economic indicators because it helps in increasing production outputs	3.2923	1.307	0.397	neutral
5	The theory of constraints is consistent with sustainable development because it contributes to increasing economic, social and environmental indicators	3.2615	1.314	0.403	neutral
MEAN		3.3046	1.188	0.359	neutral

Source: Prepared by the researchers based on the outputs of the SPSS 23 program.

c. Dimension of Total Quality Management (TQM) technology:

Table (6) displays the arithmetic mean, standard deviation, coefficient of variation relative to the items, and level of responsiveness to the sample's viewpoints. The findings showed that the highest value was when questioned (Total quality technology assists in enhancing economic indicators since it aids in continual development) with an arithmetic mean of 3.7385. It was at a good level and had a standard deviation of (1.253) and a coefficient of variation of (0.335), while the lowest value was when asked, which stated (the total quality technique is an administrative and accounting technique among the cost management techniques) and had an arithmetic mean of (3.1692) and a standard deviation of (1.353). Its coefficient of variation reached 0.427, but overall, after comprehensive quality management, it achieved an arithmetic mean (3.5354) and a standard deviation (1.137).

Table (6) shows the arithmetic mean and standard deviation of the surveyed sample’s answers regarding the dimension of total quality management technology

PARAGRAPHS	MEAN	STANDARD DEVIATION	Coefficient variation	Answer level

1	**Total quality technology is an administrative and accounting technique and a cost management technique**	**3.1692**	**1.353**	**0.427**	**neutral**
2	**Total quality technology helps reduce costs only by reducing the costs of internal and external failure**	**3.6154**	**1.319**	**0.365**	**I agree**
3	**Total quality technology helps increase economic indicators because it conserves resources**	**3.5231**	**1.288**	**0.366**	**I agree**
4	**Total quality technology helps increase economic indicators because it helps in continuous improvement**	**3.7385**	**1.253**	**0.335**	**I agree**
5	**Total quality technology helps increase social indicators because it helps improve social life and workers' dealings with products and services.**	**3.6308**	**1.364**	**0.376**	**I agree**
MEAN		**3.5354**	**1.137**	**0.322**	**neutral**

Source: Prepared by the researchers based on the outputs of the SPSS 23 program.

2- Sustainable Development:

Table (7) displays the arithmetic mean, standard deviation, and relative coefficient of variation for the items and the amount of reaction to the sample's viewpoints. The results showed that the highest value was when asked, which said (development is concerned with preserving resources as they are energies we need in current and future production) with an arithmetic mean of (3.5385) and a level Good, with a standard deviation of (1.347), and its coefficient of variation reached (0.381), and the lowest value was when asked, which said (it is better to pay attention to development as a whole, economically, environmentally, and socially) with an arithmetic mean and the coefficient of variation reached It has (0.41), but overall, the sustainable development variable achieved an arithmetic mean (3.4923) and an agreed level with a standard deviation (1.260).

Table (7) shows the arithmetic mean and standard deviation of the surveyed sample's answers regarding the sustainable development variable

PARAGRAPHS		**MEAN**	**STANDARD DEVIATION**	**Coefficient variation**	**Answer level**
1	**It is better to pay attention to development as a whole, economically, environmentally and socially in parallel**	**3.4154**	**1.402**	**0.41**	**I agree**
2	**Development needs a plan that reflects the mutual influence between**	**3.4462**	**1.311**	**0.38**	**I agree**

	the economy and society and concern for the environment				
3	**Development needs to be renewable so that it can meet the future needs of subsequent generations**	**3.5384**	**1.437**	**0.406**	**I agree**
4	**Development is concerned with preserving resources as they are energies we need for current and future production**	**3.5385**	**1.347**	**0.381**	**I agree**
5	**Increasing productivity through resource depletion alone helps in economic development.**	**3.4769**	**1.426**	**0.41**	**I agree**
6	**Manufacturing the product achieves the conditions for sustainable development economically , socially and environmentally and preserves wealth for subsequent generations**	**3.5385**	**1.347**	**0.381**	**I agree**
MEAN		**3.4923**	**1.260**	**0.361**	**I agree**

Source: Prepared by the researchers based on the outputs of the SPSS 23 program.

Fourth: Testing And Analyzing The Correlation And Influence Relationships Between The Research Variables:

As the regression analysis equation will be used to estimate the model's parameters, this section of the analysis is concerned with testing the hypotheses of the research's identified correlation and influence relationships in order to determine the possibility of judging it by acceptance or rejection. Regression analysis is a statistical tool for estimating the relationship between two variables (independent variable and dependent variable), hence revealing the inter- or causal link between variables.

1. Testing the first main hypothesis and its branches:

Table (8) shows that there is a positive significant correlation between cost management techniques and sustainable development during the research period, as the value of the overall index of the correlation coefficient reached (0.895**) and at a significance level less than (0.05), indicating the existence of the relationship between the two variables, as well as the existence of the relationship between the two variables. This conclusion demonstrates that the more the application of cost-cutting measures, the greater the contribution to supporting sustainable development goals during the research period. As a result, we reject the null hypothesis and support the alternative hypothesis, which argues that there is a link between the application of cost-cutting strategies and the achievement of sustainable development goals.

In terms of testing the research sub-hypothesis (A), which indicates that there is no association between ABM technology and the SDGs, the correlation coefficient between ABM technology and the SDGs achieved 0.832 at a significance level of 0.000. It is less than the 0.05 threshold of significance. This result demonstrates the relevance of the correlation value, since it was obtained at a high level. This result provides sufficient evidence to reject the first main hypothesis's sub-hypothesis (A) and accept the alternative hypothesis, which states that "there is a correlation between management technology and on the basis of ABM activities and sustainable development goals, indicating that there is a significant correlation

between management technology and on the basis of ABM activities and sustainable development goals.". The more private companies contribute to activating levels of management technology based on ABM activities, the more this contributes to increasing sustainable development. Therefore, it will reflect positively on the value of the establishment.

The correlation coefficient reached 0.807 at a significance level of 0.000, which is less than the level of significance of 0.05, when testing the research sub-hypothesis (b), which states that there is no correlation between the Theory of Constraints (TOC) technique and the Sustainable Development Goals. Because the correlation value was reached at a high level, this finding supports its importance. This result provides sufficient support to reject the sub-hypothesis (b) of the first main hypothesis and accept the alternative hypothesis, which states (there is a correlation between the Theory of Constraints (TOC) technique and the objectives of... sustainable development), indicating that there is a significant correlation between the two and that the more private companies contribute to activating the technical levels of the Theory of Constraints (TOC), the more. The correlation coefficient reached 0.915 at a significance level of 0.000, which is less than the level of significance of 0.05, when testing the research sub-hypothesis (C), which states that there is no correlation between the Total Quality Management technique (TQM) and the sustainable development goals. This outcome highlights the importance of the correlation value, which was extraordinarily high. This result provides sufficient support to reject the sub-hypothesis (c) of the first main hypothesis and accept the alternative hypothesis, which states that there is a correlation between quality management technology and TQM and the SDGs, indicating that there is a significant correlation between the Total Quality Management (TQM) technique and the SDGs. The more private firms contribute to activating the levels of the Total Quality Management (TQM) approach, the more they contribute to supporting sustainable development and so reflecting favourably on the establishment's worth.

Table (8) Correlation between the use of cost management techniques and the sustainable development goals

	The dependent variable is sustainable development			
Independent variable Cost management	**Dimensions**	**Degree of correlation**	**Probability**	**N**
	Activity-based management technique	**0.832****	**0.000**	**65**
	Theory of constraints technique	**0.807****	**0.000**	**65**
	Total quality management technology	**0.915****	**0.000**	**65**
	Cost management	**0.895****	**0.000**	**65**

Source: Prepared by the researchers based on the outputs of the SPSS 23 program.

2. Testing the second main hypothesis and its branches:

Testing the second main hypothesis, which states (there is no impact relationship between the use of cost management techniques and the sustainable development goals), as the analysis will be done according to a simple linear regression model:

$\hat{Y} = 0.090 + 1.002\ (X)$

Table (9) displays the calculated (F) value (254.225) between the use of cost management techniques and the sustainable development goals, which is greater than the tabular (F) value at the level of significance

(0.000) and (5%), i.e. with a degree of confidence (95). %) As a consequence, we reject the hypothesis that there is no relationship between the use of cost-cutting strategies and the attainment of sustainable development goals and accept the alternative hypothesis. It also had a coefficient of determination (2R) of 0.801, suggesting that the use of cost management measures explains about 80% of the variables in the sustainable development objectives, with the balance due to other factors that were not included in the model. At the level of significance (0.05), it also produced a calculated value of (t) for the marginal slope coefficient of (15.944), which is more than the tabular (t) value. This demonstrates that the marginal slope coefficient's usefulness for cost management measures has been established, as indicated by its value. (1.002) We observed that increasing the use of cost management measures by one unit leads in a 100% increase in the objectives for sustainable development.

Table (9) also shows that the calculated (F) value between ABM technology and SDGs is 142.115, which is greater than the tabular (F) value in terms of the level of significance (0.000), and at the level of significance (5%), i.e., with a degree of confidence (95%), we reject the hypothesis that there is no influence relationship between ABM technology and SDGs and accept the alternative hypothesis. The coefficient of determination (2R) was similarly measured at (0.801), suggesting that the ABM approach explains about (69%) of the variables discovered in the SDGs, with the remaining proportion owing to additional factors not included in the model. The estimated value of (t) for the marginal slope coefficient was (11.921) at the level of significance (0.05), which is more than the value of the table (t). The value indicates that the marginal slope coefficient is crucial for the management strategy based on ABM activities. According to the marginal slope coefficient () of 0.852, increasing the usage of ABM technology by one unit leads in an improvement of 85% in the sustainable development goals. Table (9) also indicates the computed (F) value between the TOC theory of constraints technique and the SDGs (324.006), which is larger than the tabular (F) value at the level of significance (0.000) and (5%), showing a degree of confidence. (95%) As a consequence, we reject the hypothesis that the Theory of Constraints (TOC) method has no effect on sustainability goals and support the alternative hypothesis. The coefficient of determination (2R) value was (0.651), indicating that the Theory of Constraints (TOC) technique explains approximately (65%) of the variables that occur in the sustainable development goals, with the remainder due to other variables that were not included in the model, and the value was achieved. The calculated (t) value of the marginal slope coefficient is 18,000, which is greater than the tabular (t) value at the significance level (0.05). This implies that the marginal slope coefficient is important for the Theory of Constraints (TOC) technique, and the value of the marginal slope coefficient () (0.855) implies that increasing the use of the Theory of Constraints (TOC) technique by one unit increases the sustainable development goals by one unit.85.5%.

Table (9) also shows the calculated (F) value (254.225) between the Total Quality Management (TQM) technique and the sustainable development goals, which is greater than the tabular (F) value in terms of the level of significance (0.000) and the level of significance (5%), i.e. by a degree of confidence (95%). As a consequence, we reject the hypothesis that Total Quality Management (TQM) technology has no impact on long-term development goals and instead embrace the alternative hypothesis. The coefficient of determination (2R) result was 0.837, indicating that the Total Quality Management (TQM) approach explains roughly 84% of the variables that occur in the sustainable development targets, with the remainder related to other factors that were not included in the model, and this goal was met. At the level of significance (0.05), the estimated value of (t) for the marginal slope coefficient is (15.944), which is greater than the table value (t). This demonstrates that the marginal slope coefficient is significant for the Total

Quality Management (TQM) technique, and the value of the marginal slope coefficient () of (1.014) indicates that increasing the use of Total Quality Management (TQM) technology by one unit results in a 101% increase in sustainable development. goals.

Table (9) shows the results of the ANOVAb test measuring the influence relationship between the use of cost management techniques and the sustainable development goals

	sustainable development		R^2	T Test		F Test	
	β0	β1		T	Sig.	F	Sig.
Activity-based management technique	0.641	0.852	0.693	11.921	0.000	142.115	0.000
Theory of constraints technique	0.666	0.855	0.651	18,000	0.000	324.006	0.000
Total quality technology management	0.093	1.014	0.837	15.944	0.000	254.225	0.000
Cost management	0.090	1.002	0.801	15.944	0.000	254.225	0.000

* P ≤ 0.05 N=65 D.F=1,63

Source: Prepared by the researchers based on the outputs of the SPSS 23 program.

CONCLUSIONS AND RECOMMENDATIONS:

First: Conclusions:

1. The importance of sustainable development and the necessity of taking care of it as it is a strategic goal not only with regard to the economy but also for all social, environmental, and political levels
2. Sustainable development means developing society as a whole in parallel, economically, environmentally, and socially.
3. The sustainable development of every country requires a development plan that links existing capabilities and needs with the possibility of continuing in the present and in the future to ensure a free and dignified life.
4. The indicators follow a linear trend, so they cannot be launched without a plan that adopts the stages of growth and reconciles goals that may appear to be conflicting from certain points of view.
5. Cost management techniques are tools that can be used to develop economic and social indicators that show the success of an implemented development plan.
6. ABM technology helps by reducing the costs of activities, knowing the energy constraints on outputs, and exploring the possibility of finding energy alternatives.
7. Energy management techniques are useful for saving project energy and making optimal use of it within production plans prepared for development.
8. Total quality technology is useful for reducing costs and improving social goals required in social development.
9. Technologies provide an intellectual and developmental method for the skills of workers in production, and they also give value to the society consuming those products.
10. Cost management techniques provide room for continuous improvement, which helps in developing sustainable development plans.

Second: Recommendations:

1. Interest in sustainable development as a goal that develops society through the behavior of its members
2. Preparing various plans that include the environment, society, and humans together within a comprehensive future strategic plan for multiple stages.
3. Paying attention to cost management techniques as they are tools that help achieve development goals in:

- Energy management and continuous improvement to achieve an optimal level of utilization.
- Improving quality will help achieve consumer value and increase production.
- Improving and developing employees' skills
- Improving consumer tastes in a way that contributes to improving societal thinking about the desire to obtain optimal dealings, uses, and behaviors

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