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THE IMPACT OF GREEN MANUFACTURING STRATEGIES ON ORGANIZATION COMPETITIVE PERFORMANCE: A COMPARATIVE STUDY OF OPINIONS OF A SAMPLE OF DEPARTMENTS OPERATING IN (NORTHERN CEMENT ASSOCIATE) AND (SOUTHERN CEMENT STATE COMPANY)

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Keywords:

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ABSTRACT

Purpose: The research aims to determine the extent to which green manufacturing strategies are applied in two Iraqi companies belonging to the public sector, as well as diagnosing the level of competitive performance in the two companies under study, in addition to shedding light on the impact of applying these strategies in reducing the costs of products and their role in providing a large financial return for the company and in a way that contributes to enhancing its competitive performance and increasing its productivity.

Theoretical Framework: Green manufacturing is a comprehensive system for all production stages embodied in the form of a sustainable approach to the design activities involved in the process of producing or developing products or operating the system in order to reduce environmental impact, reduce the depletion of natural resources, rationalize the use of raw materials and recycle them to make those products more efficient.

Design/Methodology/Approach: The study sample was represented in (190) views in the two companies (Northern Cement Associate and Southern Cement State Company), as the answers obtained from the aforementioned sample were analyzed through the statistical analysis package (SPSS).

Findings: One of the most prominent results of the research is the presence of a state of convergence between the two companies regarding the variables in general, which is due to a basic element that the two companies follow the same reference represented by the Iraqi Ministry of Industry and therefore the performance adoptions in its general framework are almost similar, including instructions, general directions and strategies that are adopted by the supervisory institution It is the responsibility of the operating departments to adopt them and work under the general policies of the ministry.

Research, Practical & Social Implications: One of the most important recommendations of the research is that the Ministry of Industry and Minerals adopts a policy that obliges its affiliated companies to provide clean products that contribute to reducing environmental pollution and enhance their competitive performance, as well as adopting control systems that follow the process of applying green manufacturing strategies from before these companies.

Implication/ Originality/Value: The Originality of this research is examines impact of applying green manufacturing strategies in reducing the costs of products in the two companies under study, and the role that these green manufacturing strategies in providing a large financial return for the company and enhancing its competitive performance and increasing its productivity.

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O IMPACTO DAS ESTRATÉGIAS DE MANUFATURA VERDE NO DESEMPENHO COMPETITIVO DAS ORGANIZAÇÕES: UM ESTUDO COMPARATIVO DAS OPINIÕES DE UMA AMOSTRA DE DEPARTAMENTOS OPERANDO NA (NORTHERN CEMENT ASSOCIATE) E NA (SOUTHERN CEMENT STATE COMPANY).

RESUMO

Objetivo: A pesquisa visa determinar em que medida as estratégias de manufatura verde são aplicadas em duas empresas iraquianas pertencentes ao setor público, bem como diagnosticar o nível de desempenho competitivo nas duas empresas em estudo, além de lançar luz sobre o impacto de aplicar essas estratégias na redução de custos dos produtos e seu papel em proporcionar um grande retorno financeiro para a empresa e de forma que contribua para melhorar seu desempenho competitivo e aumentar sua produtividade.

Referencial Teórico: Manufatura Verde é um sistema abrangente para todas as etapas de produção incorporado na forma de uma abordagem sustentável para as atividades de design envolvidas no processo de produção ou desenvolvimento de produtos ou na operação do sistema para reduzir o impacto ambiental, reduzir o esgotamento dos recursos naturais recursos, racionalizar o uso de matérias-primas e reciclá-los para tornar esses produtos mais eficientes.

Desenho/Metodologia/Abordagem: A amostra do estudo foi representada em (190) visualizações nas duas empresas (Northern Cement Associate e Southern Cement State Company), pois as respostas obtidas da referida amostra foram analisadas através do pacote de análise estatística (SPSS).

Resultados: Um dos resultados mais proeminentes da pesquisa é a presença de um estado de convergência entre as duas empresas em relação às variáveis em geral, o que se deve a um elemento básico de que as duas empresas seguem a mesma referência representada pelo Ministério da A indústria e, portanto, as adoções de desempenho em seu quadro geral são quase semelhantes, incluindo instruções, orientações gerais e estratégias que são adotadas pela instituição supervisora. Cabe aos departamentos operacionais adotá-los e trabalhar sob as políticas gerais do ministério.

Pesquisa, implicações práticas e sociais: Uma das recomendações mais importantes da pesquisa é que o Ministério da Indústria e Minerais adote uma política que obrigue suas empresas afiliadas a fornecer produtos limpos que contribuam para reduzir a poluição ambiental e melhorar seu desempenho competitivo, bem como como a adoção de sistemas de controle que seguem o processo de aplicação de estratégias de manufatura verde anteriores a essas empresas.

Implicação/Originalidade/Valor: A Originalidade desta pesquisa examina o impacto da aplicação de estratégias de manufatura verde na redução dos custos dos produtos nas duas empresas em estudo, e o papel que essas estratégias de manufatura verde proporcionam um grande retorno financeiro para a empresa e melhorando seu desempenho competitivo e aumentando sua produtividade.

Palavras-chave: Estratégias de Manufatura Verde, Desempenho Competitivo, Associada de Cimento do Norte, Companhia Estadual de Cimento do Sul.

EL IMPACTO DE LAS ESTRATEGIAS DE FABRICACIÓN ECOLÓGICA EN EL DESEMPEÑO COMPETITIVO DE LA ORGANIZACIÓN: UN ESTUDIO COMPARATIVO DE OPINIONES DE UNA MUESTRA DE DEPARTAMENTOS QUE OPERAN EN (NORTHERN CEMENT ASSOCIATE) Y (SOUTHERN CEMENT STATE COMPANY).

RESUMEN

Propósito: La investigación tiene como objetivo determinar en qué medida se aplican estrategias de fabricación verde en dos empresas iraquíes pertenecientes al sector público, así como diagnosticar el nivel de desempeño competitivo en las dos empresas en estudio, además de arrojar luz sobre el impacto. de aplicar estas estrategias en la reducción de los costos de los productos y su papel en proporcionar un gran rendimiento financiero para la empresa y de una manera que contribuya a mejorar su desempeño competitivo y aumentar su productividad.

Marco teórico: La fabricación verde es un sistema integral para todas las etapas de producción incorporado en la forma de un enfoque sostenible de las actividades de diseño involucradas en el proceso de producción o desarrollo de productos u operación del sistema para reducir el impacto ambiental, reducir el agotamiento de los recursos naturales. recursos, racionalizar el uso de materias primas y reciclarlas para hacer más eficientes esos productos.

Diseño/Metodología/Enfoque: La muestra de estudio estuvo representada en (190) vistas en las dos empresas (Northern Cement Associate y Southern Cement State Company), ya que las respuestas obtenidas de la muestra antes mencionada fueron analizadas a través del paquete de análisis estadístico (SPSS).

Hallazgos: Uno de los resultados más destacados de la investigación es la presencia de un estado de convergencia entre las dos empresas con respecto a las variables en general, lo que se debe a un elemento básico de que las dos empresas siguen la misma referencia representada por el Ministerio iraquí de La industria y, por lo tanto, las

adopciones de desempeño en su marco general son casi similares, incluidas las instrucciones, direcciones generales y estrategias que adopta la institución supervisora. Es responsabilidad de los departamentos operativos adoptarlas y trabajar bajo las políticas generales del ministerio.
Implicaciones sociales, prácticas y de investigación: Una de las recomendaciones más importantes de la investigación es que el Ministerio de Industria y Minerales adopte una política que obligue a sus empresas afiliadas a proporcionar productos limpios que contribuyan a reducir la contaminación ambiental y mejorar su desempeño competitivo, así como como la adopción de sistemas de control que sigan el proceso de aplicación de estrategias de fabricación verde desde antes de estas empresas.
Implicación/ Originalidad/Valor: La originalidad de esta investigación examina el impacto de la aplicación de estrategias de fabricación verde en la reducción de los costos de los productos en las dos empresas en estudio, y el papel que estas estrategias de fabricación verde tienen en proporcionar un gran retorno financiero para la empresa y mejorar su desempeño competitivo y aumentar su productividad.

Palabras clave: Estrategias de Manufactura Verde, Desempeño Competitivo, Northern Cement Associate, Southern Cement State Company.

INTRODUCTION

The pace of global changes that cast a shadow over the business environment in its general form and the industrial sector in particular is escalating rapidly, and one of the most important of those changes, which determined and to a large level the picture of performance and standards of work within its public framework and on the various industrial, commodity and service sectors of work, is the high levels of pollution and the whole world's sense the danger of a number of indicators such as climate change, the problems of the ozone layer impact, industrial waste, and the exposure of many biological elements and organisms to the risk of extinction (Beula, et al, 2022: 1). With these changes and at the forefront of those approaches and strategies are green manufacturing strategies, which began to represent the most prominent space and scope in which operating organizations compete and began to change the axes and frameworks of competitive indicators and under which standards of competitive performance have developed. The two axes referred to (green manufacturing strategies and competitive performance) represent the variable Independent and certified in the current research, embodied The problem of the research is that many departments operating in the Iraqi environment do not care enough to preserve the environment during the completion of production processes, and they do not care about the role that these green manufacturing strategies can achieve in providing a large financial return for the company in a way that contributes to enhancing its competitive performance and increasing its productivity. The aim of the research is to determine the extent of the application of green manufacturing strategies in two Iraqi companies that belongs to the public sector, as well as to diagnose the level of competitive performance in the two companies under study, in addition to shedding light on the impact of applying these strategies in reducing the costs of products in the two companies. The

research through the importance and sensitivity of the sector, which absorbed the field aspect of the research, which is two of the companies affiliated with the Iraqi Ministry of Industry and Minerals, as the institution supervising the Iraqi industrial sector in general, and considering that the two companies in question belong to a very important industrial sector, namely the cement industry sector, which enjoys great privacy and importance in the Iraqi industrial activity The sample of the study consisted of (190) views in the two companies (the Northern Cement Associate and the Company General for Southern Cement), as the answers obtained from the aforementioned sample were analyzed through the statistical analysis package (SPSS). The research includes four sections, the first includes a treatment of the study's methodology and the points it included (such as (the problem, questions, objectives and importance, hypotheses and others). The third topic includes the field framework of the study, which included a presentation of a brief about the two companies, as well as an analysis of the level of the sample answers and tests of the hypotheses of correlation, impact and moral differences. The fourth topic included the most important conclusions, recommendations and suggestions.

Many specialists consider that the concept of green production and industrialization is characterized by historical richness through the opinions that were imposed on the reality of administrative thought over different periods of time. The increasing depletion of natural resources and their use of large amounts of energy in a way that negatively affects the environment, and as a result the United Nations Assembly proposed the establishment of conferences to discuss these threats, such as the conference held in Stockholm in 1972 and its purpose was to understand all the problems of the environment and sustainable development. until the year 1990, when environmental trends emerged clearly, which focused on the concept of product control beyond manufacturing processes, reducing environmental impacts, and focusing on international standards and specifications such as the Environmental Management System (14001: (ISO and the ISO system). Quality Management (ISO 9001 and Occupational Health and Safety Assessment System) (OHSAS: 18000) in a way that reduces the negative impact of production processes on the natural environment. (2012: 64, Baine et al, and after that the Earth Summit) witnessed a discussion of many environmental issues and through it the green manufacturing system emerged at the global level, and it was considered one of the best systems that improve the efficiency of manufacturing processes (OECD, 2009: 23)). Other labels for green manufacturing have emerged, including clean manufacturing, environmentally responsible manufacturing, sustainable manufacturing, environmental manufacturing,

environmentally friendly manufacturing, and environmental management with total quality (Wang & Chan, 2013: 161).

This research is an attempt by the researcher to track the state of intellectual development witnessed in the production management environment and the performance of organizations as one of the knowledge environments characterized by dynamism and movement. From here comes the importance of the research in that it presents a number of opinions and approaches that are modern and renewable within the scope of the intellectual debate of the variables and what are the most important scientific developments in the scientific research arena. In addition of the importance and sensitivity of organizations studied, which absorbed the field aspect of research, which is two of the companies affiliated with the Iraqi Ministry of Industry and Minerals, as the institution supervising the Iraqi industrial sector in general, and considering the two companies in question belong to a very important industrial sector, which is the sector The cement industry, as systematic scientific research can be considered the best way through which to achieve an actual industrial renaissance, especially if the state of real interconnection between academic and research institutions and their field counterparts is activated, as the former provides approaches and theoretical approaches that the latter can adopt to raise the level of performance to simulate or approach or global standards achieved by international industrial organizations.

The problem of the research crystallized and through the researcher's review of several publications from the official and semi-official specialized supervisory authorities that monitor the level of negative effects of the Iraqi industrial organizations on the natural and social environment data, through which they diagnosed a weakness in the application of environmentally friendly or green production strategies and approaches, and the reason is due to the fact that these administrations are not sufficiently concerned with preserving the environment during the completion of production operations, and they are not concerned with the role that these strategies can play in providing a large financial return for the company in a way that contributes to enhancing its competitive performance and increasing its productivity.

Within the framework that is mentioned, the research problem can be embodied in the following questions:

1. To what extent does the management working in the two companies under study have a clear vision and perception of green manufacturing strategies? What is the level of application of these strategies?

2. What is the level of interest of the two companies under study in competitive performance? What is the nature of the managerial understanding of competition indicators?

3. To what extent are the correlation and influence relationships achieved between green manufacturing strategies and competitive performance in the two companies under study?

4. What is the nature of the moral differences between the two companies under study in the level of the two variables (green manufacturing strategies and competitive performance)?

The objectives of the research are determined in:

1. Determining the extent to which the two companies under study apply green manufacturing strategies.

2. To diagnose the level of competitive performance in the two companies under study.

3. Determine the extent to which there is no significant correlation between green manufacturing strategies and the competitive performance of the two companies under study.

4. Indicating the presence/absence of a significant influence relationship of green manufacturing strategies on the competitive performance of the two companies under study.

LITERATURE REVIEW

Green Manufacturing Strategies

A- Concept

The concept of green manufacturing has received wide and great attention from writers and researchers, which has increased the variety of definitions that have been developed to define the features of this concept, as well as the diversity of visions of the standards that frame the theoretical form of the concept.

Among the definitions of green manufacturing, we mention the following:

1. A manufacturing method that reduces pollution and waste and is done through design and search for renewable ways to manufacture products that does not harm the human health and the environment (Parasd & Sharma, 2014:411).

2. A manufacturing model that reduces the amount of waste and pollution, reduces the depletion of natural resources, and ensures the rationalization of materials and the reuse of waste to help make products more efficient (Verma & Sharma, 2016: 526).

Based on the foregoing, it is clear that:

1. The green manufacturing system is a response to a need and a very important influence, represented by the high levels of pollution arising from unstructured manufacturing processes.
2. The concept of green manufacturing stems from the idea of sustainability mainly in the sense that it represents a responsible vision from different parties towards future generations by securing their basic production needs and controlling production processes.
3. Working with green manufacturing constitutes a comprehensive system that starts from the first stages represented by the idea of the product, preparing the raw materials, design, then processing and ending with the last stages of use and disposal of the product or recycling or re-manufacturing of the product as a whole or some of its parts.

The researcher believes that green manufacturing can be defined procedurally as:

(A comprehensive system for all production stages embodied in the form of a sustainable approach to the design activities involved in the process of producing or developing products or operating the system in order to reduce environmental impact, reduce the depletion of natural resources, rationalize the use of raw materials and recycle them to make those products more efficient.)

B- Green Manufacturing Strategies:

The opinions of writers and researchers about the classification of green manufacturing strategies varied, but through the researcher's review of many sources and research in this regard, it was found that most writers and researchers focused on green manufacturing strategies represented by (reducing the source, recycling, reusing and re-manufacturing) and in this The framework The researcher agrees with the opinions that classify the strategies of operations included in the green manufacturing system into the four strategies that he called (4R), although there are other strategies according to many points of view, but (4RS) was considered a method or methodology for many studies within this field For its role in achieving efficiency in manufacturing processes.

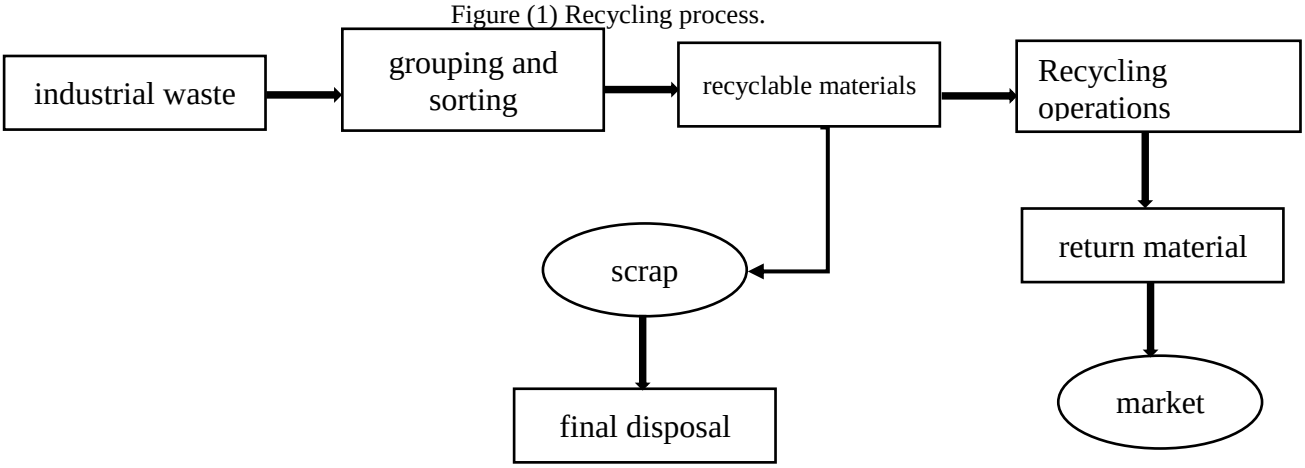
1. The strategy of reducing the source (reduce from the source): It is defined as "the process of reducing the waste of manufacturing processes at the source by using clean technology, developing manufacturing processes, using less raw materials and generating less waste during manufacturing processes. This strategy requires the following: researching, finding and packing products free of hazardous and toxic substances whenever possible / re-designing the products to make them produce the least percentage of raw materials and energy and have a longer use period or they can be used again after the expiry of the period Their natural use for which they were made / purchase raw materials with specifications or properties that cannot be consumed quickly).

2. Recycle strategy: It is defined as "a series of activities that include collecting elements or materials that can be considered waste, by sorting and treating recyclable products and transforming them into raw materials that can be used in the manufacture of new products" (Rebellon, 2012: 65) The recycling strategy takes two important directions (Elhagger, 2010: 28), which are:

A. Superior recycling inside the factory: It includes the recovery of lost materials either to the original processes or to other processes used as primary inputs inside the factory.

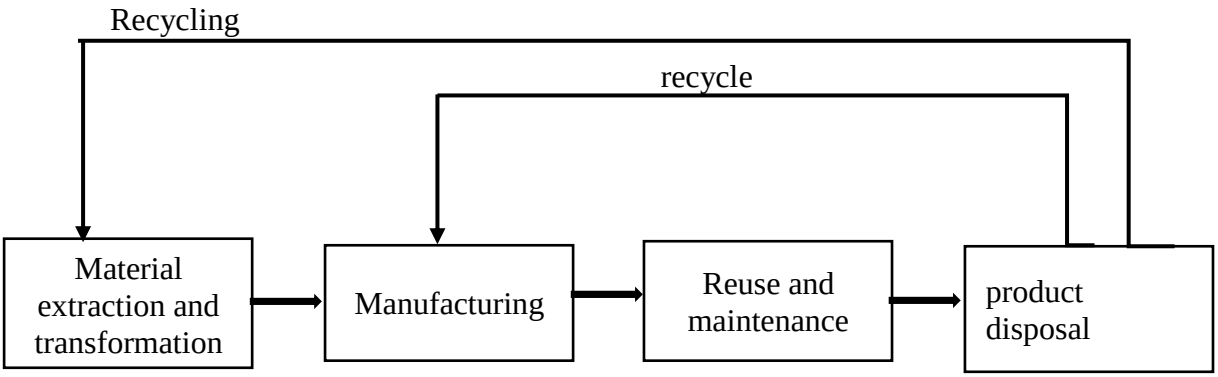
B. Recycling outside the factory: where recycling operations are carried out through other companies specialized in recycling industrial waste, and these companies purchase waste and then recycle it and then sell it to other companies. Recycling involves separating waste materials and then treating them as raw materials for products that may or may not be similar to the original materials. Figure (2) illustrates the recycling operations through collecting and sorting industrial wastes, leading to the recovery of materials and sending them to the market, or sending them as scrap for final disposal. Recycling Mills Blackness Recyclable Collecting and sorting industrial waste.

Figure (1) Recycling process.



Source: Kutz , M. (Ed .) . (2007), Environmentally conscious mechanical design, John Wiley & Sons, Canada, p (250).

Figure (2) The difference between recycling and recycling.



Source: Oakley, B. T, (1993), " Total quality product design how to integrate environmental criteria into the product realization process ", Environmental Quality Management, Vol (2), No (3), p (311).

3. Reuse strategy: It is defined as “the processes through which products and materials are retrieved with the aim of using them after the end of the product’s life, and in a manner that provides the best opportunities to benefit from materials and products again” (Henriques et al, 2014:302)). This strategy focuses on using the product a second time after determining its remaining useful life, which reduces the consumption of raw materials. The products or some of their components are used after the end of their main function to benefit from them again. This strategy helps to save the costs of purchasing new raw materials and reduce the amount of industrial waste.

4. Remanufacturing strategy: This strategy emerged as a result of the spread of environmental concerns in almost all industries and at all stages of the product life cycle, because the resources used during manufacturing are very large and the amount of waste resulting from those processes is large, and the strategy emerges at the end of the product life, and In the past remanufacturing activities focused mainly on recovering the

economic value of the products used to manufacture products that are close in specifications to the specifications of the new products, although the processing procedures may differ according to the nature of the product being remanufactured (Wang & Chan, 2013:3).

Competitive Performance

A- Concept:

A number of definitions of the concept of competitive performance are:

1. The company's ability to carry out its activities in a distinct way or ways that other competitors cannot imitate, and in what makes the competitive advantage the most prominent (Uchegbulam & Akiniele, 2015:327).
2. The ability of the working departments to continuously move the production factors towards the most efficient activities (Razavi et al., 2016: 861).
3. The company's ability to provide products with high performance and quality through creativity in designing these products in order to achieve competitive advantages on more than one level (Danielsen & Framnes, 2017:12).

The concept of competitive performance can be summarized according to the following points:

1. The concept of competitive performance is completely linked to the level of market share obtained by the organization and according to several criteria, most notably the economic or financial criterion.
2. The focus of competitive advantage is the matter that preoccupies all departments working in the business environment, because the organization's ability to build production mechanisms that are difficult to imitate is something that is not easy to reach and needs comprehensive strategies.
3. The state of frantic competition between working organizations called for thinking about superiority over others in a way that puts it in the first priority in the philosophy of modern management. Competitive performance can be defined procedurally as

B- Importance of Strategic Performance:

The importance of strategic performance is embodied in the following points:

1. Competitive performance is a positive indicator for companies through which they can obtain a high market share, outperforming other competitors.

2. It is one of the basic factors through which companies can face the challenges imposed by the market, because it works to improve their business and make them more efficient than other competitors.

C- Dimensions of Competitive Performance

There are various opinions and approaches that identified the most important dimensions on the basis of which it is possible to understand the content of the competitive performance of the operating organizations. However, for the purposes of this study, the researcher chose the following dimensions (manufacturing unit cost, product conformity to specifications, product performance and capacity, flexibility, production cycle time Product creativity) being the dimensions most consistent with the nature of the companies under study, in addition to being tested and enabling the researcher to use the standards clearly and accurately. Below is a presentation of each of the dimensions of competitive performance that were adopted for measurement purposes.

1. Manufacturing unit cost: The cost refers to providing products at lower prices than other competitors, which leads to an increase in market share, and it is also known as the company's provision of products at the lowest possible cost and to the satisfaction of the customer (Karjewski et al, 2013:32)

2. Product conformance to specifications: It is defined as "the ability to produce goods and services according to their specific specifications reliably and consistently" (Slack, 2018:56) and the advantage may appear in conformity as consistency or similarity between the product and the requirements or performance that meets the requirements, as the goal of conformity is to determine whether the final result of the manufactured product complies with the initial requirements or not (Liepina et al, 2014: 632) and when the primary goal of meeting the needs and expectations of the customer is achieved, the product is considered high quality regardless of the quality of the design specifications.

3. Flexibility: refers to "the company's ability to respond to changes that may be related to the organizational creativity such as characteristics and design of the product or service (Kthair, and Al-Hindawy, 2022: 869), or the volume of demand for the product or the mix of products or services that the company provides" (Stevenson, 2018:4).

4. Production cycle time: It is defined as (Krajewski et al., 2013: 276) "The maximum time allowed to work on the unit in each station if it exceeds the time required

for the work elements in one of the stations, otherwise the station will be in a (bottleneck) and prevent the line from Reaching the required production rate", and the cycle time is measured from the time of start of work until the product is delivered in sync with the production time.

5. Product performance and ability: It is defined as "the ability and performance of the product to achieve the purpose for which it is made under certain working conditions and within a specified period of time, and guiding the customer to how to use it in a way that secures the customer's requirements and for an appropriate period .The performance of the product is a measure of the basic features of the product's work and these features are usually compared with those offered by other competitors, taking into account the different opinions of customers regarding the performance of the product that one customer considers to be of quality and may not be the same for another customer.

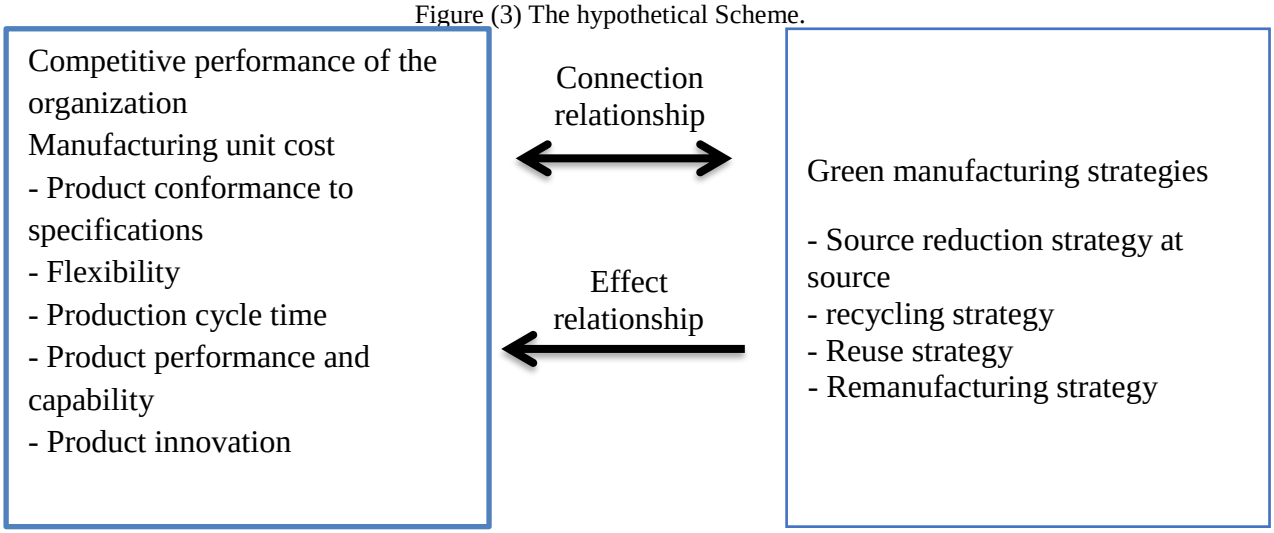
Through what was mentioned he sees the Researcher that working in the Iraqi environment in its general framework and the environment of the organizations under study in particular is witnessing a state of intense competition between local organizations on the one hand and between them and imported products on the other hand, which means an increase in the competition curve on all aspects such as prices, quality, technologies and others, which means the necessity Orientation of the working administrations towards an actual study of work vocabulary and areas of competition, as this concept and through the dimensions mentioned is the first step and in the right direction towards achieving a level of competitive performance that can be described as advanced and motivating to establish a sustainable competitive advantage through which administrations can overcome all environmental determinants and obstacles .

MATERIAL AND METHODOLOGY

Hypothesis Research Scheme

In light of the problem and objectives of the study, a hypothetical plan has been developed that shows the correlation and influencing relationship between the study variables. Figure (1) below represents the hypothetical scheme.

Figure (3) The hypothetical Scheme.



Source: Prepared by the author (2023).

Research Hypotheses

The hypotheses were built on the basis of the relationship and influence between the study variables and the differences between the two companies under study in the level of the two variables and their sub-dimensions, and three main hypotheses were crystallized in this direction as follows:

The first main hypothesis (1): There is a connection relationship with statistical reference between manufacturing strategies Green and the competitive performance of each of the two companies under study, from which four hypotheses are branched:

1-1 There is a connection relationship with statistical reference between the source reduction strategy and the competitive performance of each of the two companies under study

1-2 There is a connection relationship with statistical reference between the recycling strategy and the competitive performance of each of the two companies under study.

1-3 There is a connection relationship with statistical reference between the reuse strategy and the competitive performance of each of the two companies under study

1-4 There is a connection relationship with statistical reference between the remanufacturing strategy and the competitive performance of each of the two companies under study.

The second main hypothesis (2): There is a moral effect of green manufacturing strategies on the competitive performance of each of the two companies under study, and five hypotheses derive from it as follows:

2-1 There is a moral effect of the source reduction strategy on the competitive performance of each of the two companies under study

2-2 There is a moral effect of the recycling strategy on the competitive performance of each of the two companies under study.

2-3 There is a moral effect of the reuse strategy on the competitive performance of each of the two companies under study.

2-4 There is a moral effect of the remanufacturing strategy on the competitive performance of each of the two companies under study.

The third main hypothesis (3): There are moral differences between the two companies in the level of the two variables (green manufacturing strategies, and the competitive performance of the organization) under study, and two hypotheses derive from it as follows:

3-1 There are moral differences between the two companies in the overall level and dimensions (green manufacturing strategies).

3-2 There are moral differences between the two companies in the overall level and dimensions (competitive performance of the organization).

RESULTS AND DISCUSSION

Description and Diagnosis of the Level of the Study Variables According to the Responses of the Sample Members in the two Companies Under Study

This part of the research aims to identify the reality and importance of the study variables in the two companies, by presenting and interpreting the results as follows:

1. Describing and diagnosing the level of green manufacturing strategies according to the answers of the sample members in the two companies under study: In light of the answers of the sample members in each company about the paragraphs of the questionnaire, the results of the descriptive statistical analysis of the variable of green manufacturing strategies that were produced by the use of the arithmetic mean, standard deviation, significance level and coefficient will be presented The difference is as in Table No. (1) below.

Table (1) values the arithmetic mean. The standard deviation, significance level, and coefficient of variation for green manufacturing strategies in the two companies under study

The order of the dimensions in terms of the coefficient of variation	Variation coefficient	Relative importance	standard deviation	Arithmetic mean	Dimensions	no	The company
Fourth	0.353	%57.7	0.969	2.88	source reduction strategy	1	Northern cement associate company
First	0.307	%62.4	0.933	3.11	recycling strategy	2	
Third	0.325	%61.5	0.987	3.06	reuse strategy	3	
Second	0.308	%61.8	0.945	3.09	remanufacturing strategy	4	
N=99	0.323	%60.9	0.958	3.04	green manufacturing strategies		
Fourth	0.332	%64.7	1.069	3.23	Source reduction strategy	1	Southern cement state company
Second	0.328	%61.8	1.014	3.09	recycling strategy	2	
First	0.294	%66.9	0.977	3.35	reuse strategy	3	
الثالث	0.331	%64.1	1.028	3.21	remanufacturing strategy	4	
N= 91	0.321	%64.4	1.022	3.22	green manufacturing strategies		

Source: Prepared by the author (2023).

A review of Table (1) leads to the following indicators:

A. North Associate Company, the recycling strategy achieved the first rank among the green manufacturing strategies, with a coefficient variant (0.307) and an arithmetic mean of (3.11) exceeding the hypothetical mean (3) and with a standard deviation of 0.933 and a relative importance (62.4%), which indicates the company's management's interest in this The strategy and in line with the general global trend of spreading the culture of recycling at the individual and industrial levels, while the strategy of reducing the source came in the fourth and last order, and the arithmetic mean of (2.88) did not exceed the hypothetical mean (3) and with a standard deviation of (0.969) and relative importance (57.7%) and with a coefficient of difference (0.353), which indicates the lack of this dimension within the opinions of the sample, and therefore it is an indicator that it is not adopted by the organization in question, which must pay attention to the

direction of adopting this strategy, which has proven its importance at the global industrial level and in various fields.

B. In the General Company for Southern Cement, the reuse strategy achieved the first rank with a coefficient of difference of (0.294) and an arithmetic mean (3.35) that exceeds the hypothetical mean (3) and with a standard deviation of (0.997) with a relative importance of 66.9% that these indicators are consistent with the nature of the environmental indicators that cast a shadow as a result of the scarcity of resources and the high costs of raw materials, the administrations were forced to think of reusing some products or parts of them to achieve a state of rationalization in consumption and achieve many economic benefits, while the reduction strategy came from the source in the last order with a difference coefficient (0.332) with a relative importance of (64.7%) and a standard deviation Normative (1.069) and arithmetic mean (3.23), in which the views of the sample in the company agree with the North Cement Associate. Green manufacturing is comprehensive and integrated starting from the first steps of the production process to the end of the use process.

C. On the overall level, the level of application of the four strategies in the two companies under study is very close (the average level application of the strategies in the two companies in total) despite the presence of a disparity, albeit slight, in the application of each of the four strategies individually at the level of the two companies

2. Description and diagnosis of the level of competitive performance according to the answers of the sample members in the two companies under study:

In light of the responses of the sample members in each company to the questionnaire items, the results of the descriptive statistical analysis of the variable (competitive performance), which were produced by the mechanisms for using the arithmetic mean, standard deviation, level of importance and coefficient of variation, will be presented as in Table No. (2) below.

Table (2) values of the arithmetic mean, standard deviation, level of importance, and coefficient of variation for the competitive performance variable in the two companies under study.

dimensions order in terms of the coefficient of variation	Variation coefficient	Relative importance	standard deviation	Arithmetic mean	Dimensions	no	The company
Sixth	0.322	64.1	1.022	3.21	Manufacturing unit cost	1	Northern cement
Third	.0284	68.7	0.937	3.44	Product conformance to specifications	2	

Fourth	.0300	64.5	0.946	3.23	Flexibility	3	associate company
Fifth	.0320	68.1	1.076	3.40	production cycle time	4	
First	.0247	72.6	0.865	3.63	Product performance and capacity	5	
Second	.0263	69.8	0.892	3.49	product innovation	6	
N=99	.0289	68	0.956	3.40	competitive performance		
Sixth	0.326	63.6	1.001	3.18	Manufacturing unit cost	1	Southern cement state company
Fourth	0.282	71.5	0.973	3.59	Product conformance to specifications	2	
Third	0.260	68	0.843	3.39	Flexibility	3	
First	0.215	73.1	0.772	3.65	production cycle time	4	
Second	0.242	72.2	0.842	3.61	Product performance and capacity	5	
Fifth	0.294	68.2	0.971	3.41	product innovation	6	
N= 91	.0270	69.43	0.903	3.47	competitive performance		

Source: Prepared by the author (2023).

Table (2) values of the arithmetic mean, standard deviation, level of importance and coefficient of variation for the competitive performance variable in the two research companies

By looking at Table No. (2) above, it is clear that:

A. In Northern associate Cement Company, the product's performance and ability ranked first with a coefficient of difference (0.247), standard deviation (0.865), relative importance of 72.6%, and arithmetic mean (3.63) exceeding the hypothetical mean (3) (which is an important indicator as a result of the sensitivity of the sector to which the research sample organizations belong, which The basic material in the field of architecture and construction, therefore, it is necessary to obtain a distinguished performance to be obtained from the use of the outputs of the company, the research sample, while it came after the cost of the manufacturing unit in the last order, with a coefficient of variation (0.300), a relative importance (64.5%), a standard deviation (0.946) and an arithmetic mean (3.23) exceeds the arithmetic mean (3), which is an indicator that the working departments of the company must pay attention to as it represents the organization's ability to adapt to the nature of demand in the Iraqi industry and environment through the element of pricing based on cost in particular with the state of competition by the external product.

B. In the Southern Cement State Company, the production cycle time dimension came in the first order with a coefficient of variation (0.215), a standard deviation (0.772), a relative importance (73.1%), and an arithmetic mean (3.65) that exceeds the hypothetical mean of 3, while it came after the manufacturing unit cost in the last order

and with a coefficient A difference of (0.326) with a relative importance of (63.6%) and a standard deviation of (1.001) and an arithmetic mean (3.18) that exceeds the arithmetic mean (3), which is, as we mentioned in the previous point, that this is an indicator that the departments operating in the company should pay attention to, considering that the overall cost structure depends On this indicator and that the basic competitiveness adopted by the operating organizations stems from the pricing policies adopted, and therefore work according to this indicator is an essential foundation in the overall competitive performance.

C. On the level of the overall competitive performance variable, the level of performance in the two companies under study converged, as they achieved a higher than average level (somewhat good) in competitive performance, despite the slight discrepancy in the strength of the indicators of this pattern at the level of the two companies

Correlation Hypotheses Test

1. Testing the test hypotheses in the Northern Cement Associate Company

Table (3) below is the results of the correlation between lean manufacturing strategies and competitive performance in Northern Cement Company, as follows:

Table (3) results of the correlation between lean manufacturing strategies and competitive performance in Northern Cement associate Company

Percentage	The number of moral correlation coefficients	independent variable green manufacturing strategies	Remanufacturing	reuse	Recycling	Reducing at the source	Green Manufacturing Strategies Competitive performance
%80	4	0.739**	0.726**	0.316	0.728**	0.720**	Manufacturing unit cost
%100	5	0.839**	0.762**	0.718**	0.717**	0.876**	Product conformance to specifications
%80	4	0.723**	0.719**	0.441	0.711**	0.714**	Flexibility
%0	0	0.435	0.468	0.430	0.328	0.362	production cycle time
%20	1	0.443	0.517*	0.207	0.432	0.390	Product performance and capacity
%80	4	0.734**	0.718**	0.401	0.712**	0.825**	product innovation
%80	4	0.713**	0.720**	0.429	0.709**	0.739**	dependent variable
22 out of 35		5	6	1	5	5	The number of moral

						correlation coefficients
%63	%71	%86	%14	%71	%71	percentage

Source: Prepared by the author (2023).
(**) There is a moral connection with a level of confidence of (99%).
(*) There is a moral connection with a level of confidence of (95%).

Table (3) results of the correlation between Lean manufacturing strategies and competitive performance in Northern Associate Cement Company

It is clear from the results in table (3) the following:

A. The strategy of reducing the source showed (5) significant positive correlations with the total and dimensions of competitive performance at a rate of (71%) of the total number of achieved correlation coefficients, and with strong correlation values (0.876, 0.825) with (product conformity to specifications, product innovation), respectively The correlation values were above average in their strength with (manufacturing unit cost, flexibility, total competitive performance) and two weak and non-significant correlations emerged with (production cycle time, product performance and capacity).

B. The recycling strategy achieved (71%) of the expected significant correlations with the total and dimensions of competitive performance by verifying (5) correlations, and all correlation coefficients were greater than the mean in their strength with (manufacturing unit cost 0.728 / product conformity to specifications 0.717 / flexibility 0.711 / Product Creativity 0.712 / Total Competitive Performance 0.709) The strategy indicated weak and non-significant correlations with my dimensions (production cycle time / performance and product ability)

C. The reuse strategy indicated only one significant correlation with the dimension of product conformity to specifications, with a correlation coefficient higher than the average in its strength (0.718) and at a rate of (14%), while the rest of the correlation coefficients achieved with dimensions and total competitive performance were weak in strength and not significant, which confirms that there is no correlation

D. The percentage of intrinsic relationships achieved between the remanufacturing strategy and the dimensions and total competitive performance was 86%, and its explanatory power was distributed over correlation values above the average in its strength with (manufacturing unit cost / product conformity to specifications / flexibility / product innovation / total competitive performance) which is a sequence (0.718). , 0.720, 0.719, 0.726, 0.762), and a medium-level correlation appeared with the performance dimension and product ability with a value of (0.517)

E. The total green manufacturing strategies indicated positive and moral (5) correlations with dimensions and total competitive performance at a rate of (63%), and the correlation values were strong with the product conforming to specifications with a value of (0.839), while the correlation was higher than the mean in its strength with dimensions (unit cost). Manufacturing, flexibility, product innovation, total competitive performance (with correlation coefficients, respectively (0.713, 0.734, 0.723, 0.739), while indicating a weak and non-significant correlation with (production cycle time / product performance and capacity)

Testing the Test Hypotheses in the General Company for Southern Cement

Table (4) below shows the results of the correlation between lean manufacturing strategies and competitive performance in the Southern Cement State Company, as follows:

Table (4) below is the results of the correlation between lean manufacturing strategies and competitive performance in the Southern Cement State Company

Percentage	The number of moral correlation coefficients	independent variable green manufacturing strategies	Remanufacture	reuse	Recycling	Reducing at the source	green manufacturing Strategies competitive performance
%80	4	0.712**	0.435	0.723**	0.786**	0.791**	Manufacturing unit cost
%100	5	0.815**	0.748**	0.739**	0.871**	0.870**	Product conformance to specifications
%80	5	0.873**	0.760**	0.708**	0.756**	0.744**	Flexibility
%0	0	0.412	0.424	0.477	0.464	0.413	production cycle time
%100	5	0.815**	0.766**	0.747**	0.846**	0.801**	Product performance and capacity
%100	5	0.805**	0.708**	0.740**	0.819**	0.816**	product innovation
%100	5	0.889**	0.742**	0.713**	0.895**	0.823**	The dependent variable is competitive performance
35 from 29		6	5	6	6	6	The number of moral correlation coefficients
%83		%86	%71	%86	%86	%86	percentage

Source: Prepared by the author (2023).
(**) There is a moral connection with a level of confidence of (99%).
(*) There is a moral connection with a level of confidence of (95%).

It is clear from the results in table (4) that:

A. The strategy of reducing the source (6) showed positive and significant correlations with a percentage of (86%) and values of strong correlation (0.823, 0.816, 0.801, 0.870) with (product conformity to specifications / performance and product capacity / product innovation / total competitive performance) and the values were higher than the average in their strength with (manufacturing unit cost / flexibility) and indicated a weak and non-significant correlation with (production cycle time)

B. The recycling strategy achieved (86%) of the significant correlations with strong correlation values with (conformity of the product to specifications / performance and product capacity / product innovation / total competitive performance), and with correlation values greater than the mean with (manufacturing unit cost / flexibility), which is on respectively (0.756 and 0.786) and showed a weak and insignificant correlation with (production cycle time) with a value of. (0.464)

C. A connection relationship emerged between the reuse strategy and competitive performance at a rate of (86%), and the values were mostly above the mean in their strength with (manufacturing unit cost / product conformity to specifications / flexibility / performance and product capacity / product innovation / total competitive performance) (as I indicated with a dimension) production cycle time, there is a weak and insignificant correlation with a value of (0.477).

D. The percentage of intrinsic relationships between the remanufacturing strategy and competitive performance was (71%) with explanatory strength higher than the mean with (product conformity to specifications / flexibility / performance and product capacity / product innovation / total competitive performance) and amounted, respectively, (0.742, 0.708, 0.766, 0.760 and 0.748 (there are two weak and insignificant correlations with () the manufacturing unit cost / production cycle time)

E. The total green manufacturing strategies indicate (6) positive and significant correlations with competitive performance, and the correlation values were strong with (product conformance to specifications / flexibility / performance and product capacity / product innovation / total competitive performance (and higher than the mean with) unit manufacturing cost (with a correlation value of (0.712), while I indicated an insignificant value with the dimension (production cycle time) with a value of (0.412)

F. Within the framework of the previous results, (83%) of the expected relationships between green manufacturing strategies and competitive performance were achieved.

Through the totality of the previous indicators in tables (3) and (4), the results of testing the following main and sub-hypotheses can be determined.

1-1 There is a connection relationship with statistical reference between the strategy of reducing the source and the competitive performance of each of the two companies under study (accepted in terms of achieving 71% of the relations in the Northern Cement Associate and 86% in the

Southern Cement State Company)

2-1 There is a connection relationship with statistical reference between the recycling strategy and the competitive performance of each of the two companies under study (it is accepted in terms of achieving 71% of the relationships in the Northern Cement Association and 86% in the Southern Cement State Company)

3-1 There is a connection relationship with statistical reference between the reuse strategy and the competitive performance of each of the two companies under study (it is rejected in terms of achieving 14% of the relationships in the Northern Cement Association and it is accepted in terms of achieving 86% in the Southern Cement State Company)

4-1 There is a connection relationship with statistical reference between the remanufacturing strategy and the competitive performance of each of the two companies under study. (In terms of achieving 86%, the relations are accepted in the Northern Cement Association and 71% in the Southern Cement State Company)

The first main hypothesis (1) There is a connection relationship with statistical reference between green manufacturing strategies and the competitive performance of each of the two companies under study (accepted in terms of achieving 63% of the relationships in the Northern Cement Associate and 83% in the Southern Cement State Company)

Effect Hypotheses Test

Through the tables No. (5) and (6) below, the values that were adopted in testing the main and subsidiary hypotheses of the effect appear as follows:

1. Testing the hypotheses of the green manufacturing strategies effect on the competitive performance of the Northern Cement associate Company: The results of the test are shown in table (5) below.

Table (5) results of testing the effect of green manufacturing strategies on the competitive performance of the North Cement Cooperative

nature of relationship	Indication level P	The calculated F value	The calculated T value	beta coefficient β	The coefficient of determination R^2	Variable
Moral	0.000	30.547**	5.527**	0.449	0.546	Reducing from the source
Moral	0.000	2.714**	5.539**	0.583	0.704	Recycling
Moral	0.000	52.408**	7.239**	0.771	0.523	Reuse
Not moral	0.000	0.445	0.117	0.180	0.189	Remanufacture
Moral	0.000	28.025**	4.560**	0.508	0.490	independent variable green manufacturing strategies

Source: Prepared by the author (2023).

Through the results presented in table (5) that the total strategies had a significant effect in the dimensions and total competitive performance in terms of (F) and (t) values calculated at the significance level (0.01), as each of the calculated T-value 4.560) and the calculated F-value 28,025 is greater than the tabulated value of each of (6.85 F / 2.32 T), except after re-manufacturing, the value of the moral effect was not achieved in the adopted variable, as the calculated T value (0.17) and the calculated F value (0.445) were lower than the tabular value, and within the framework of (R^2) sub-strategies explain its value (54%, 70%, 52%, 18%) and the independent variable as a whole accounts for (49%) of the changes that occur in (total competitive performance), while the rest of the changes are attributed to other factors outside the framework of the impact model As for the beta coefficient, it was found that increasing the interest by one unit in the sub-strategies of green manufacturing leads to an increase in the level of competitive performance by (44%, 58%, 77%, 18%) respectively, and by (50%) if the interest in the green manufacturing variable as a whole increases.

2. Testing the hypotheses of the effect of green manufacturing strategies on competitive performance in the Southern State Cement Company and the results of the test appear in table (6) below.

Table (6) results of testing the effect of green manufacturing strategies on competitive performance in the General Company for Southern Cement

nature of relationship	Indication level P	The calculated F value	The calculated T value	beta coefficient β	The coefficient of determination R^2	variable
Moral	0.000	12.653**	3.557**	0.325	0.507	Reducing from the source
Moral	0.000	64.712**	8.044**	0.959	0.664	Recycling
Moral	0.000	49.377**	7.027**	0.762	0.762	Reuse
Not moral	0.000	2.390	1.546	0.237	0.170	Remanufacture
Moral	0.000	32.283**	5.043**	0.570	0.525	independent variable green manufacturing strategies

Source: Prepared by the author (2023).

Through the results presented in table (6) that the total strategies achieved a significant effect in the dimensions and total competitive performance in terms of (F) and (t) values calculated at the level of significance (0.01), where each of the calculated T-value 5.043 and (computed F-value) 32.283 is greater than the tabular value of each of (6.85 F / 2.32 T), except after re-manufacturing, the value of the moral effect was not achieved in the adopted variable, as the calculated T value (1.546) and the calculated F value (2.390) were less than the tabular value, Within the framework of (R^2) values, the sub-strategies explain their values of (50%, 66%, 17%, and 76%), and the independent variable as a whole accounts for (52%) of the changes that occur in the total competitive performance. As for the rest of the changes, they are attributed to other factors outside the framework of the impact model. For the beta coefficient, it was found that increasing the interest by one unit in the sub-strategies of green manufacturing leads to an increase in the level of competitive performance by 32%, 95%, 23% and 76%, respectively, and by (57%) if the interest in the green manufacturing variable as a whole increases.

By looking at tables (4) and (5) for testing the hypotheses, the following becomes clear

2-1 There is a moral effect of the source reduction strategy on the competitive performance of each of the two companies under study (the hypothesis is accepted in terms of achieving the relationship of moral influence in the two companies)

2-2 There is a moral effect of the recycling strategy on the competitive performance of each of the two companies under study (the hypothesis is accepted in terms of achieving the relationship of moral influence in the two companies)

2-3 There is a moral effect of the reuse strategy on the competitive performance of each of the two companies under study (the hypothesis is accepted in terms of achieving the relationship of moral influence in the two companies)

2-4 There is a moral effect of the remanufacturing strategy on the competitive performance of each of the two companies under study (the hypothesis is rejected in the sense that the moral relationship has not been achieved in the two companies)

The second main hypothesis: There is a moral effect of green manufacturing strategies on the competitive performance of each of the two companies under study (the hypothesis is accepted in terms of achieving the moral relationship in the two companies)

Testing the significant difference hypothesis

In the framework of this axis, the results of testing the third main hypothesis of the moral differences between the two companies (under study) in the level of the study variables are presented, as follows: -

1. The differences between the two companies in the variable of green manufacturing strategies: table (7) presents the differences between the two companies under study in the total strength and dimensions of the strategies table (7) results of testing differences in the total and dimensions of the independent variable green manufacturing strategies) between the two companies listed.

Table (7) results of testing differences in the total and dimensions of the independent variable green manufacturing strategies) between the two companies listed

Comparison result	Indication level	The value of the Mann Whitney test	independent variable	No
High moral difference	0.000	4.658**	Reducing from the source	1
There are no differences	0.071	1.805	Recycling	2
There are no differences	0.106	1.617	Reuse	3
There are no differences	0.495	0.683	Remanufacture	4
There are no differences	0.545	0.605	independent variable green manufacturing strategies	

The test was carried out at a level of significance (0.05).
Source: Prepared by the author (2023).

The results in table (7) indicate that no significant differences were achieved in the strength of the total green manufacturing strategies and the strength of the strategies (recycling, reuse, re-manufacturing) because the values of the (P) test for the total and dimensions

(significance level) are greater than the level of significance (0.05), while they were achieved. Significant differences only in the strategy (reduction) in terms of the value of (P), which was less than the level of morality (P≤ 0.05), and this paves the way for rejecting the first sub-hypothesis of the differences between the two companies in the strength of the variable green manufacturing strategies, which states (There are significant differences between The two companies in the overall level and dimensions of green manufacturing strategies.

2. The differences between the two companies in the strength of the competitive performance variable table (8) presents the differences between the two companies under study in the strength of the total and the dimensions of competitive performance.

Table (8) The results of the scalp test in the total and dimensions of the approved variable, the competitive performance between the two companies under study

Comparison result	Indication level	The value of the Mann Whitney test	independent variable	No
high moral difference	0.000	3.766**	Manufacturing unit cost	1
high moral difference	0.000	4.004**	Product conformance to specifications	2
high moral difference	0.000	5.461**	Flexibility	3
high moral difference	0.000	7.964**	production cycle time	4
high moral difference	0.004	2.880**	Product performance and capacity	5
There are no differences	0.382	0.874**	product innovation	6
high moral difference	0.011	2.551**	The dependent variable competitive performance	

The test was carried out at a level of significance (0.05).
Source: Prepared by the author (2023).

Through the results shown in table (8) it is clear that there are fundamental differences in the strength of the total competitive performance and in the dimensions (manufacturing unit cost, product conformity to specifications, flexibility, production cycle time, product performance and capacity) between the two companies under study because the test values (P) are less than The level of morality (0.05), while no significant differences were indicated in (product creativity) because the value of (P) is greater than the level of morality (P≤ 0.05). The two companies in the overall level and dimensions of the competitive performance of the organization) and within the framework of the results achieved, there is partial acceptance of the third main hypothesis of the differences, which states that (There are moral differences between the two companies in the level of the two variables, green manufacturing strategies, and the competitive performance of the organization).

CONCLUSIONS

Through the overall practical framework of the research, the state of rapprochement between the two companies regarding the variables in general is shown, which is due to a key element that is that the two companies follow the same reference represented by the Iraqi Ministry of Industry. It is adopted by the supervising institution, and it is the responsibility of the working departments to adopt it and work in light of the general policies of the ministry. There is a correlation between green manufacturing strategies and competitive performance at the level of the two companies under study. The reuse strategy did not achieve a significant correlation with the competitive performance in the Northern Cement Associate Company, while it showed significant correlations with the dimensions of competitive performance in the General Company for Southern Cement. A significant impact of the strategies (reduction, recycling, and reuse) on the competitive performance of the two companies has been achieved. The remanufacturing strategy did not have a significant impact on the competitive performance of the two companies under study. The emergence of fundamental differences between the two companies in the strength of the reduction strategy, and the failure to achieve such differences at the level of strategies (recycling, reusing, re-manufacturing) and the total of the four strategies. Finally, there are substantial differences between the two companies in the strength of the dimensions of competitive performance (manufacturing unit cost, product conformity to specifications, flexibility, production cycle time, product performance and capacity, and the total of these dimensions) and there are no fundamental differences between the two companies in the strength of their competitive performance through product innovation.

The Ministry of Industry and Minerals adopting a policy that obliges its affiliated companies to provide clean products that contribute to reducing environmental pollution and enhancing their competitive performance, as well as adopting control systems that follow the process of applying green manufacturing strategies by these companies.

The management of the two companies adopts mechanisms to ensure that the costs of products are reduced, which is related to reducing the use of raw materials, and the manufacture of reusable products, and this basically will be reflected in reducing the selling prices of these products and achieving greater sales, especially if each company maintains the quality of these products.

Spreading the clean product culture among the company's employees, and relying on them to reduce the amount of industrial waste and environmental pollutants through posters,

holding seminars, workshops for environmentally friendly products and other means and mechanisms that serve this trend.

Using machines with low energy consumption, which contributes to reducing its effects on the environment, and reducing the volume of pollution and energy consumed.

Holding training courses to clarify the contents of strategies (reducing, recycling, reusing, re-manufacturing) and the benefits achieved by the company as a result of its application of these strategies.

Paying more attention to the strategy of reducing the source in the two companies, as it is the first step in the right direction to adopt the green manufacturing strategy

On the level of future studies, the researcher suggests the following studies:

1. The effect of green manufacturing strategies on raising the level of profits.
2. The effect of green manufacturing strategies on achieving the strategic success of organizations.
3. The impact of lean manufacturing strategies on raising the level of competitive performance

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