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Apply sustainable concurrent engineering to implement differentiation strategy (Applied study in Al-Diwaniyah tire factory)

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Abstract:

This research aims to study one of the costly administrative technologies, which is a sustainable concurrent engineering and highlighting its role in reducing costs and shortening the life cycle of the product and meeting the requirements of customers and focusing on the environmental dimension, and indicating its impact on the implementation of one of the competitive strategies, which is the strategy of differentiation. The research is classified as a study Applied in the Diwaniyah tires factory affiliated to the General Company for Rubber Industries, and the research reached a set of conclusions, the most important of which are: the necessity of applying the sustainable synchronous engineering in the research sample factory because of the benefits of this technology in achieving savings in the time, cost and quality, which in turn is in line with the distinction strategy as well as the necessity of following this The strategy to obtain a greater market share and thus achieve higher profits, which contributes to the recovery of the national economy.

Keywords: Sustainable Sustainable Engineering, Excellence Strategy .

1. INTRODUCTION

As a result of rapid and successive changes and developments in the business environment in general and the manufacturing environment in particular, which led to an increase in pressures and challenges on economic units in addition to technological developments, so the focus of these industrial economic units has become on contemporary production technologies, and among these technologies is the intense integral engineering technology, it is a technology that seeks to carry out operations Design and development simultaneously and the possibility of its application in manufacturing and assembly, by forming a multi - functional team that sets an appropriate action plan aimed at achieving savings in both cost and time while maintaining an acceptable level of quality.

2.The search contains four paragraphs:

The first represents the methodology of research and previous studies ، and the second represents the cognitive foundations for both sustainable and sustainable engineering and the differentiation strategy. The third represents the practical aspect of the research where the technology of value analysis was applied in the Diwaniyah Tire Factory ، The fourth represents the conclusions and recommendations.

2.1 research methodology

The research deals with a number of paragraphs represented in the research problem, its importance, goals, hypotheses, society, scientific method, sources of information collection and its borders, which are as follows- :

2.1.1The research problem

The Iraqi economic units suffer from many problems, including the problem of high costs in comparison with the competing foreign products offered in the local market, as a result of not following the strategy competitive, for example, a distinction strategy, as well as not following it for contemporary vocal and administrative methods and technologies such as the sustainable complementary engineering technology, and the research problem can be expressed across The following intellectual questions:

1- Is it possible to apply the sustainable synchronous engineering technology in Iraqi economic units?
2- Is the application of sustainable synchronous engineering technology helps in implementing the differentiation strategy?

2.1.2The research importance :

The importance of the research stems from the importance of both the sustainable coincidence and the distinction strategy, as the importance of the sustainable complementary engineering comes from the extent of its suitability for the modern business environment, and its ability to keep pace with successive and fast changes through its use of the collective work method, as it is a very important tool for achieving savings in cost and time while preserving On an acceptable level of quality. As for competitive strategies, its importance comes from improving it for the competitive position of the products and services provided by the economic unit within its field of work, through improving productivity and deleting unnecessary activities and tight control over the elements of costs, and this research will be focused on the differentiation strategy.

2.1.3 The research objectives:

The research aims to achieve a number of things, which are as follows:

1- Highlighting the intense, sustainable engineering technology and its role in achieving savings in cost and time, taking into account the environmental dimension.

2- Highlighting the distinction strategy and its role in improving the competitive position of economic units.

3- Applying the sustainable synchronous engineering technology to implement the differentiation strategy in economic units.

2.1.4 The Research Hypothesis:

The research is based on a main hypothesis that the following:

(The application of sustainable synchronous engineering technology can help economic units in implementing the differentiation strategy in a way that is consistent with the requirements of the modern business environ):

2.1.5 Scientific Research Methodology and Data Collection Sources:

Scientific curriculum has been followed, namely the deductive approach and the inductive approach, the deductive approach was followed on the theoretical aspect and the inductive approach, so it was followed on the practical aspect of this research ، As for the data and information on the practical side, it was accessed through the following:

A- Obtaining data from the factory accounts division.

B- Engineers responsible for the factory production operations.

3.1.6 The research sample :

The research community represents the factories affiliated with the General Company for Every Industries, and it is one of the formations of the Iraqi Ministry of Industry and Minerals. As for the research sample, it is a diwaniyah tire factory, in which the applied side of the research is performed.

First: The spatial boundaries of the research: The General Company for Rubber Industries and Tires / Diwaniyah Rubber Factory was chosen as a sam

Second: Temporal limits of the research: The temporal boundaries of the 2016 fiscal research were chosen. It was chosen as the year closest to reality and the researcher was able to obtain its data

2.1.7 The research variables:

The research included two variables:

A- The independent variable: represented by a sustainable synchronous engineering

B- The dependent variable: represented by competitive strategies

3. Previous studies:-

3.1 Study, aisha Tayya ,2016 "Application of simultaneous engineering for cooperative learning and design of new products".

This study aimed to use simultaneous engineering methods to integrate collective learning between students and apply their skills to design new products.

3.2 Study,ALTUNTAş Et Al, 2014 "The Forces of Industry, Competitive Strategies, Job and Organizational Performance: Evidence of Restaurants in Istanbul"

The study aimed to show the relationship between the industrial forces, competitive and functional strategies and organizational performance in the "brand" study sample in Istanbul, Turkey.

4. The epistemic foundations of simultaneous engineering

In order for units to offer new high -quality products with faster arrival to the market, they need innovation, and that any innovation process at the present time, especially the design of new products (NPD) is a

simultaneous effort that includes engineers, business planners, marketing employees and environmental professionals who work as an integrated team to keep pace with Competitors, as it was found that simultaneous engineering is the most widely used technology in this context for NPD, as the basic principles of simultaneous engineering (CE) depend on the course of work, multi -functional work teams and early participation of experts of various fields whose skills will be required or will be distributed in The stage along the product design process (Qamar, et.al, 2016: 760)

Accordingly, CE is an approach to controlling the cost of the life and quality life cycle and the time of access to the market during the development of products through the development in a simultaneous manner for the relevant products and operations with the response to customer expectations, Ce has three basic elements: early participation of customers and equipped, the multi -function team, and work The synchronous at different stages of the development of products, CE teams usually consist of marketing functions, product engineering, process engineering, manufacturing planning and the basic principle of (CE) was the focus on integration and alignment between design and manufacturing, taking into account the desires of customers and the unknown capabilities. (Et & al , Wognum, 2015: 24-25)

There are several entrances to simultaneous engineering, which are bilateral, trilogy, and counterattacks, knowing that the quadruple engineering can be called a sustainable and sustainable engineering due to the addition of the environmental dimension to it.

4.1 Principles and importance of simultaneous engineering:

Concurrent engineering depends on many of the basic principles of its application: (Ali, 2019: 29-30), (Abdul Hussein, 2021: 29(

1- Preparing a detailed work plan and focusing on all aspects of the product life cycle
2- Market analysis, customer knowledge, and focus on customer's training constantly as a basic step to implement simultaneous engineering technology.
3- Adopting the concept of the team instead of individual work, through the use of a multi-functional team that is related to all the operations of the product
4- Snack in all processes related to the product, by integrating the tools and technologies needed to develop the product.
5- Using the market access time as a source of competitive advantage.

As for the importance of sustainable concurrent engineering, it is as follows: (Al -Mousawi, 2013: 28), (Al -Sifani, 2013: 36)

1- The units are in the future to develop the product, whatever their size and work, in order to compete
2- The units modify their products, address their development course, and complete their various tasks simultaneously
3- Focusing on the customer's requirements and ensuring them in the process
4- Early and continuous participation of equipped in the design process.
5- Early use of design tools, the use of modern tools such as (CAD, CAM, Cae(
6- Reducing pollution by focusing on the environmental dimension.

4.2 Reasons for the use of simultaneous engineering:

There are several reasons that drive economic units to adopt simultaneous engineering technology, which can be clarified through the following: (Al -Zamili, 2017: 74-75)

1- Achieving the competitive advantage:

Economic units are achieved through the application of simultaneous engineering technology all elements of competition: from time, quality, cost, flexibility, dependence and service, and that all these benefits make economic units adopt this technology to achieve benefits related to achieving the competitive advantage.

2- The increasing performance of activities:

Classified engineering is the key that distinguishes economic units from others and is considered the primary element to improve quality, development cycle, reduce production costs, delivery of products at the specified time, and early discovery of design problems, as well as using simultaneous engineering that enables it to shrink repetition in reviewing and revising the design, and initial models And the engineering restoration efforts, as well as it enables it from the first time to create a good environment for work.

3- Reducing the time of development and design:

Classified engineering helps in achieving great savings at the time of the design and development of the product, while meeting the requirements of customers, which is the main reason that led to the change of the market goals leading to the re -design and development.

The economic units that apply the simultaneous engineering technology at the beginning of the process have a strong tool in the development of the product, as adherence to the cost of the product is one of the initial stages of its application, which includes market research, design and development, will help the unit to produce new products that meet the requirements and desires of customers.

4.3 The stages of the application of sustainable complementary engineering:

There are four stages for the application of CE technology, which are: the stage of preparation and preparation, the design stage, the stage of review and evaluation, the transition stage to production and will be clarified through the following: Al-Zamili, 2017: 83-84)

The first stage: the stage of preparation and preparation:

At this stage, the needs and desires of customers are determined and the capabilities, capabilities and resources of the economic unit that can be used in the design process are determined as well as the inclusion of system functions and specialists for each job, in addition to determining the framework of the design process for each of the product, the process and the supply chain, and the inclusion of the inputs of beneficiaries from the design process, whether they are internal Or external, and the appropriate tools for the CE application and individuals who will participate in their application are determined with the status of a suitable work plan to apply this technology.

The second stage: design stage

At this stage, the synchronous engineering technology is applied according to the plan that was placed in the preparation and preparation phase with the establishment of a joint database and the exchange of information between the members of the multi -functional team for simultaneous engineering technology,

as during this stage the realistic integration between the work team, the work environment and experiences is carried out Specialists in the Economic Unit, if they depend on the idea of Japanese companies, which are called the open office to prepare the appropriate floor to make dialogues and discussions open in addition to forming an integrated work environment through which the answer is solved and answered and answered questions that can occur during this stage.

The third stage: the stage of review and evaluation

At this stage, the designs that were prepared for both the product, the process and the supply chain are reviewed, as the designs are reviewed and the adjustments are made as needed by the sustainable concurrent engineering team, as well That is, it can be said that this stage is a process of continuous improvement for the design process for each of the product and the process of supply, and during this stage the design that can achieve the best engineering and technical results is that it is of high quality and a distinctive functional performance at the lowest cost.

Fourth stage: the transition stage to production:

After the final design was adopted during the previous stage, the transition to production, that is, at this stage, manufacturing and assembly operations are made simultaneous Production development.

5. Knowledge foundations for the distinction strategy

5.1 The concept of a differentiation strategy:

The differentiation strategy can help the economic unit to reach the competitive advantage by focusing on the quality and time of design and manufacturing, in addition to providing products that are compatible with the needs, desires and requirements of customers regarding performance and quality and thus improving both market share indicators and profitability (Al -Zamili, 2017: 99-100)

The differentiation strategy can be defined that it is a strategy that the economic unit pursues when the economic unit when you want to provide unique products or services in the industry, i.e. working to increase the value of the customer, and in this strategy the price is unimportant and the focus on quality and innovation is that the customer is persuaded to the product or service and from Then get his loyalty to economic unity and its products.

5.2 Benefits of the Excellence Strategy:

1- The distinction provides protection for the unit from competitors to the point that consumers have loyalty to the brand for the unit product, and this loyalty in turn will be a barrier to entering other units into the industry.
2- If the source of excellence is not concrete, such as the brand and an example of it is the position of Rolex watches, then this unit will be largely safe.
3- The distinguished unit works to provide high-quality products by intensifying research and development efforts exceptionally, which results in increasing the market share of the unit and thus increasing profitability. (Abu Hamida, 2013: 25-28)

Accordingly, one of the advantages of the differentiation strategies is that it makes the economic unit does not compete for prices, because the distinctive unit works to meet the requirements of customers, with high quality and unique, and thus achieving a higher profit margin, because the target market is ready to pay a higher price in exchange for obtaining the highest quality or the best value that leads To increase revenues with less sales.

5.3 The requirements for implementing the differentiation strategy:

There are two types of requirements: (Zain and Abu Kirsh: 2014: 792), (Al -Janabi: 2017, 209)

A- Physical requirements are (high marketing capabilities, creative tendency, advanced product engineering, distinct research capabilities, distinct reputation for quality and technology, unique intellectual skills and intellectual capabilities, strong communication and coordination that enables them to win skills from other units, coordination and cooperation between distribution channels.

B- Regulatory requirements are (strong coordination between research, development, production and marketing functions, specific measures instead of quantitative measures, commitment to attract and care for human, creative and well-trained resources

The relationship between the sustainable synchronous engineering and the differentiation strategy:

The relationship between the sustainable and sustainable engineering and the differentiation strategy in the joint endeavor to improve quality ، and that the integration between them in the economic unit will enhance the achievement of this goal ، Economic units have oriented towards the simultaneous engineering technology as it is one of the most effective ways in managing the life cycle of the product, where it is done. In this method, designing the product and testing the production process, and at the same time, both engineers and workers evaluate the production system to study how the new product can be done in line with the capabilities of production, after knowing the requirements of customers, and here it must be indicated the importance of the positive relationship to carry out the activities in parallel first and then a difference Classical engineering work in achieving the needs and desires of customers. (Shaalan, 2017: 745 - 746, 760)

The differentiation strategy involves achieving the competitive advantage through the exclusivity in providing products and services to which the customer is seen as a distinct unimaginable ، It may be distinction in design, quality, brand, technology, distributors network or customer services (hawks and wins, 2020: 121)

The researcher believes that the economic unit that adopts the intense, sustainable engineering technology will enhance its ability to be distinct in the presence of the joint goal that is compromised by improving quality, and since CE technology is characterized by parallel work through a multi -functional team and the involvement of the equipped and the customer in the early stages of this design will help improve Quality and achieve distinction according to the desires and needs of customers.

6. the practical side

6.1 The research sample (Al-Diwaniyah Tire Factory) :

Diwaniyah tires factory is one of the laboratories affiliated with the General Company for Rubber Industries, which is one of the formations of the Ministry of Industry and Minerals. -1200) And knowing

that the factory follows the unified accounting system, and in recent years it has become an irregular production due to the major changes at the market level and the entry of many competition products of good quality and acceptable prices, with the lack of taxes for the imported product and poor financing by the state, in addition to that High production costs that made production move towards deterioration.

Table No. (1)

The production capacity of the factory is the search sample (for the period 2014-2017)

Years (2014-2017)	Design energy	Available energy	Planned production	Actual production	The ratio of the verified to each of (%)		
					Design energy	Available energy	Planned production
2014	88920	17500	9000	0	%0	%0	%0
2015	88920	17500	9000	0	%0	%0	%0
2016	88920	17500	9000	3155	%3.5	%18	%35
2017	88920	17500	9000	4929	%5.5	%28	%55

We note from the above schedule that the years (2014) and (2015) actual production in them are zero due to the lack of raw materials, and that the years (2016), (2017) witnessed a remarkable decline in production levels in comparison with the design and available and planned energy for those years, and that is. To not provide the raw materials needed for production, as well as the large number of holidays in production machines as a result of stopping in the years.

6.2 The application of simultaneous engineering in the Diwaniyah Tire Factory:

The application of simultaneous engineering has several steps and can be clarified with the following:

6.2.1 Determine the idea to develop the product:

During this step, the new idea for the development of the product, which is represented by the tires, will be determined (1200-20) and (1200-24), with the help of the views of the design engineers and technicians in the research sample factory, where harmful substances will be replaced by the environment with less harmful substances The product from the point of view of both the factory and customers, and the environmental protection from pollution has been suggested during the use of a little environmentally friendly natural rubber in the consumption of electrical energy.

6.2.2 Determine the specifications of the product:

During this step, new ideas in design are translated into engineering and technical specifications that can be measured quantitative so that it facilitates the process of comparing them with the previous model of the product and with competitors, depending on the experience of the design engineers in the tire factory, the search sample, where the use of natural rubber with a fixed viscosity instead of Normal natural rubber

6.2.3 The basic design (conceptual):

During this step, the factory design team determines the most important production processes necessary for manufacturing and assembly, with a commitment to coincide with the implementation of these operations, whether the operations for design or assembly are in order to achieve time savings and costs and improve quality.

6.2.4 Detailed Design:

This step is based on the basic design step, where the factory's work team design the research sample design the two-sized producers (20-1200) and (24-1200), designing the ingredients needed to achieve the idea of protecting the environment from pollution using a natural rubber with a fixed viscosity (CV 60)

For the purpose of achieving after the sustainability of protecting the environment from pollution, a natural rubber with a fixed viscosity (CV 60) was used instead of normal natural rubber, because the type (CV 60) is characterized by a fixed wife and the lack of change of viscosity during kneading, which reduces the consumption of electricity, as well as no loss During kneading, which reduces the costs, as the costs of buying one ton of natural rubber (CV 60) ($ 2500) are equivalent to (2340,000) Iraqi dinars (the dollar exchange rate for the year 2016 according to the costs of the costs of the factory (1170) dinars), while The costs of buying one ton of normal natural rubber (2750) dollars, equivalent to (3217500) Iraqi dinars, which provides 250 dollars per ton equivalent to (292,500) Iraqi dinars, in addition to providing electric energy, i.e. reduces indirect industrial expenses as well as reducing damage, This replacement will help maintain the environment in addition to improving quality.

6.2.5 Preparing a design alternative and estimating its costs:

During this step, the proposed alternative to the frame design in size (20-1200) and (24-1200) will be presented with the estimation of the costs for each size ، through the following:

Suggested alternative to design: (Replacing normal natural rubber with natural rubber with a fixed viscosity (CV 60) with all the ingredients of the dough for the frame industry remains the same without change)

During this alternative, the normal natural rubber will be replaced by natural, with a fixed viscosity, which is a friend of the environment ، while staying on other materials that make up the frame as they are in the product represented by the frame size (1200-20) and the size of (1200-24) ، and from the engineering and technical results of this alternative The proposal decreases the time of the cornea due to the nature of the fixed viscosity of this type of rubber ، and the design engineers working in the factory sees the research sample that this alternative has a positive impact on the performance of the frame in terms of durability and in terms of the environment, as it is a friend of the environment ، As for the cost results, it can be clarified from During the following two tables:

Schedule(2)

The cost of the total estimated product in light of the first design alternative to the frame size (20-1200)

Cost elements	The cost before the design	The cost after design	the difference
Direct materials	178986.4	152860.3	26126.1Abundance
Direct labor	41133.3	41133.3	-
Factory overhead	4621.4	4394.88	226.52Abundance
total cost	224741.1	198388.48	26352.62 Abundance

Source: from the preparation of the researcher

We note from the above table that the cost of direct materials before the design (178986.4) Iraqi dinars, where the factory used the normal natural rubber, which costs (95787.9) dinars per frame ، and according to this alternative with the design, the normal natural rubber will be replaced with natural fittings with a fixed viscosity (CV 60 The cost of (69661.8) dinars per frame ،, while the cost of direct materials after the design amounted to (152860.3) dinars, so that the cost of direct materials has decreased by (26126.1) dinars ، As for direct wages, the same amount remained because the same number was relied upon The workers ، While the industrial costs that are indirectly before the design amounted to (4621.4) dinars, and after consulting the engineers working in the factory, the research sample showed that the use of the design alternative represented by rubber with fixed viscosity will decrease each of the wages of electricity and fuel 10%, reaching each of the wages Electricity and fuel before the use of the alternative (2265.24) dinars, and after the reduction (2038.72) dinars, the industrial costs are not directly (4394.88) dinars.

Schedule(3)

The cost of the total estimated product in light of the first design alternative to the frame size (24-1200)

Cost elements	The cost before the design	The cost after design	the difference
Direct materials	209329.4	121296.32	88033.08 Abundance
Direct labor	48499.5	48499.5	-
Factory overhead	2897.2	2633.92	263.28 Abundance
total cost	260726.1	172429.74	88296.36 Abundance

Source: from the preparation of the researcher

We note from the above table that the cost of direct materials before the design (209329.4) Iraqi dinars, where the factory used the normal natural rubber, which costs (169530.6) dinars per frame ، and according to this alternative with the design, the normal natural rubber will be replaced with natural fittings with a fixed viscosity (CV 60 The cost of (81497.52) dinars per frame ،, while the cost of direct materials after the design amounted to (152860.3) dinars, so the cost of direct materials has decreased by (26126.1) dinars ، As for direct wages, the same amount remained because the same number was relied upon The workers ، While the industrial costs that are indirectly before the design amounted to (4621.4) dinars, and after

consulting the engineers working in the factory, the research sample showed that the use of the design alternative represented by rubber with fixed viscosity will decrease each of the wages of electricity and fuel 10%, reaching each of the wages Electricity and fuel before using the alternative (2632.80) dinars, and after the reduction (2369.52) dinars, the industrial costs are not directly (2633.92) dinars ، and therefore this design alternative will be accepted because it achieved the results For its merits, whether it is at the level of technical and engineering results or at the level of cost results.

6.2.6 Study the costs of the proposed alternative and decision -making:

During this step, the costs will be studied in the case of implementing the proposed design alternative, then decision-making on the basis of the design alternative. Affairs for costs have been achieved for the size (20-1200) in the amount At the cost of the frame size (24-1200) in the amount of (88296.36) dinars per frame, i.e. (117522455.16) dinars for total production ، and it has the total abundance that is achieved for production for producers is (165589634.04) dinars ، related to the decision that must be taken in this step so the transition to manufacturing operations is And assembly, taking into account it simultaneously to implement the proposed design.

6.2.7 Moving to manufacturing, assembly and marketing operations:

After accepting the proposed design alternative because of its positive results, whether it is at the technical and engineering level or at the cost level ، the transition to the manufacturing and assembly stage, which can be performed simultaneously ، then marketing produced by the two sizes mentioned above to customers.

6.3 The application of sustainable synchronous engineering to implement the distinction strategy:

Through what is mentioned in this topic, according to the application of the sustainable concurrent engineering and to carry out the tasks simultaneously, we can come out with the following:

1- The quality of the frame has been improved through the proposed design, which is represented by replacing the normal natural rubber with a fixed-viscosity.
2- The environment was protected and the pollution was reduced by implementing the proposed design.
3- An abundance of costs was achieved in the amount of (165589634.04) dinars, and it was clarified in the sixth step of the steps for implementing the sustainable conclusion engineering.

Since the distinction strategy seeks to win the loyalty of customers, through several ways, including excellence in design or quality, and since the application of sustainable synchronous engineering achieves this, the researcher believes that the application of sustainable synchronous engineering will help in implementing the differentiation strategy.

7. conclusions and recommendations

In this topic, the most important dependencies and recommendations will be summarized from the researcher's point of view

7.1 Conclusions:

1- The use of simultaneous engineering technology by carrying out design, manufacturing and assembly for the product simultaneously, in line with customer requirements leads to improving quality through excellence in design in a manner that achieves the needs and desires of customers ، and reduce production costs and get rid of all unnecessary activities as well as discovering problems Early, which is easy to treat and get rid of its consequences.
2- The Diwaniyah tires factory suffers from many problems, including not keeping pace with the Marketing and Distribution Department of changes that occur in the market, as the services after the sale are almost not present, machines and equipment in the factory are old, and this in turn affects the volume of production and its quality, and thus the high cost of the product and then its price increases, It leads to customers' reluctance to acquire it.
3- The factory has suffered from neglect after 2003 and until now, which led to a significant decrease in its production capacity coupled with its design, available and planned card.

7.2 Recommendations:

1- The factory management must use modern administrative and costly methods and technologies, the most important of which is the simultaneous engineering technology, because of this technology of the effectiveness in developing products and controlling costs and keeping pace with the changes that occur in the business environment, and this will enable the factory to provide its products in local markets at acceptable prices and compete Global products in terms of quality and price.
2- The factory management must work to replace the old machines and machines with a new one, which contributes to increasing productivity, as well as reducing maintenance expenses.
3- The governmental authorities must issue laws that support the local product, by paying attention to allocating funds to enhance production in it and raise the tax rate on competing imported products.
4-

References

1- *Altuntaş, 2014 "Industry Forces Competition and Functional Strategies and Organizational performance Istanbul University*
2- *Abdul-Hussein, 2021, "Classified Engineering Role in Exposing Cost", University of Baghdad.*
3- *Abu Hamida, 2013 "The effect of applying quality management standards in building a differentiation strategy in Jordanian pharmaceutical companies", Middle East University.*
4- *Abu Karsh, 2014 "The reality of the application of competitive portraits and its reflection in the development of the performance of the industrial sector in the city of Hebron", Al-Quds University*
5- *Ali, 2019, "Using the coincidence and cost engineering techniques on the basis of time-directed operations as an integrated framework in improving the value of the product" University of Karbala.*
6- *Al-Janabi, strategic management and the challenges of the twenty-first oven, "Amjad House for publishing and Distribution.*
7- *Al-Mousawi, 2013, "The effect of simultaneous engineering on the promotion of competitiveness", karbala University.*
8- *Al-Sulafani, 2013 "Classified Engineering and its Impact on Marketing Excellence", University of mosul.*
9- *Al-Sulafani, 2013, "Classified Engineering and its Impact on Marketing Excellence", University of mosul.*
10- *Al-Zamili, 2017 "Classified Engineering Role in achieving competitive advantage", University of baghdad.*
11- *Dhillon, 2015, "Engineering and Technology Management tools and Applications.*
12- *NEL WOGNUM, Editors, "Engineering Concurrent in the 21st Century", Wageningen University.*
13- *Shaalan, 2017 "Classified Engineering Role in Enhancing Customer Voice", Middle Euphrates university.*
14- *Tayyab, 2016, "Application of Concurrent Engineering for Collaworathive Learning and New Product design", Binghamton University, Binghamton, New York*
15- *Tayyab, 2016, "Application of Concurrent Engineering for Collaworanet Learning and New Product design" Binghamton University, Binghamton, New York Chen, 2015 "Concurrent Engineering in the 21st Century"*