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Analysis of the Sustainable Value Chain and its Role in Reducing Quality Costs

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ABSTRACT

Contemporary developments in various sciences and the impact of technological changes require an integrated vision of the activities and work of the organization in Iraq in light of the high costs of products and their low quality compared to imported products of high quality and low cost, and the need to use modern cost techniques based on a clear and specific philosophy that contributes to increasing the efficiency and effectiveness of management In the business environment and how it can contribute to reducing product costs and being environmentally friendly at the same time, it is no secret that the main goal of most organizations is to maximize profitability and reduce costs to the minimum, but this matter is not achieved automatically, but rather requires a study of all the activities of the organization for several years, horizontal and vertical comparisons, and the adoption of all advanced and modern methods and methods that will achieve this. Accordingly, this research came to shed light on the use of one of the modern techniques in the field of cost management, which is represented by the sustainable value chain and its theoretical dimensions, which is based on the study of total costs and thus the division of those costs on the main and subsidiary activities of the organization and accordingly, the research has been divided into sections according to the possibility of covering the dimensions The theory of the sustainable value chain and its role in excluding activities that do not add value to the product and shows the importance of the study of the role of sustainable value chain technology that took into account the environmental aspects. It also contributes to making products that harm the environment environmentally friendly and contributes to reducing costs at the same time. Therefore, the research aims to demonstrate the knowledge bases of sustainable value chain technology and demonstrate how the cost of the product can be reduced and environmentally friendly.

INTRODUCTION

Economic units face several challenges prevailing in the business environment, which force them to strive to implement the most important modern management concepts. The most important of these challenges are embodied in the globalization that led to the transfer of competition from local markets to global markets, the free movement of capital, labor and goods, and the increase in agreements and economic blocs, which have become economic forces in themselves, such as the European single market, for example. The acceleration of the movement of technological development and the emergence of technological innovations on a continuous basis that the institution is unable to catch up with and the increase in the requirements of customers, especially with the emergence of many alternative opportunities in front of it and the intensification of competition due to the entry of a huge number of institutions into the arena of competition, the emergence of new marketing opportunities and the emergence of quality requirements as a key factor for entering markets. The globalization and success in it, and the emergence of consumer protection bodies that take upon themselves to ensure the quality and safety of the products and services obtained by the latter. All these

variables prompted institutions to apply modern management techniques and methods to ensure through them occupying a strong position in the market, as well as maintaining and maximizing this position. One of the most important modern trends for business organizations is to reduce the cost of the product and make it environmentally friendly by paying attention to total quality and achieving products and services that satisfy and meet customer needs, exceed their expectations, and strive for customer satisfaction. And that is by providing a product or service at the right price, without compromising the acceptable quality, distinguished services and environment-friendly, and striving to use cost techniques that reduce cost (a sustainable product) and focusing on the quality of products and services is one of the most important variables that institutions seek to achieve to ensure the satisfaction and loyalty of their customers, because the satisfaction of Customers would bring the company an increase in profitability, enhance its competitive position, and ensure its survival and continuity in the market.

THE CONCEPT OF SUSTAINABLE VALUE CHAIN

Achieving corporate sustainability requires consideration of social, economic and environmental factors, all of which have a

direct impact on each other (Chari, et.al, 2014: 544), multiple definitions of the sustainable value chain have been presented, although it is one of the modern concepts that have been addressed in the field of strategic cost management.

Defined by (Jnr, 2019: 381) as a sequential series of industrial processes in which environmentally friendly initiatives are adopted throughout the entire process, focusing on reuse, recycling and renewal to reduce waste.

As for (Francois, et.al, 2017: 84), they defined the sustainable value chain as the management of the flow of materials and information as well as cooperation between companies along the supply chain taking into account the objectives of all three dimensions of sustainable development, i.e. economic, environmental, social and stakeholder requirements.

The value chain can be defined by the researcher (a set of activities to meet the quality requirements of the product by adopting continuous improvement processes for value chain activities from the beginning to achieve a sustainable and green product, taking into account the economic, social and environmental aspects of the product to be environmentally friendly and the possibility of recycling and disposal of

product waste and obtaining a competitive advantage).

IMPORTANCE OF A SUSTAINABLE VALUE CHAIN

Academics, governments and NGOs encourage industrial companies to adopt environmentally friendly practices in their operations, offer products as well as provide a strategic path that will provide them and society with economic and environmental benefits. (Darmawan et al., 2014: 202).

Environmental aspects have been integrated into the traditional value chain in the name of sustainable value chain management. It covers areas such as sustainable research and development, sustainable design, and sustainable manufacturing processes, thus delivering increased value to consumers at the lowest possible cost (Jnr, 2018: 383).

The use of the sustainable value chain management tool also brings many benefits to companies, such as: increasing the amount of information available, providing support for decision-making and improving the effectiveness of production and sales planning. In addition, a sustainable value chain in business has a significant impact on dynamic capabilities, in the face of market environments. in which companies carry out their activities, Where companies strategize through the

sustainable value chain in the social, economic and environmental dimensions of their services, in order to meet the demands of their customers. The results reveal that sustainable value chain management based on dynamic capabilities in SMEs permeates their resource relationships with the environment, through which re-adaptations are created in activities, opportunities are explored and processes are improved. (Moura & Saroli, 2020).

The analysis of the value chain in light of sustainable trends according to the point of view (3: 2013 Bellù,) For policy making, it involves the following:

1. Assessing the state of the value chain that looks at its various economic, social and environmental dimensions
2. Identify areas of potential value chain improvement that can be introduced by policy measures
3. Assess the potential economic, social and environmental impacts of available policy options

The information obtained through this analytical work provides insights for stakeholders involved in policy processes and supports the process of making public policy decisions to achieve the competitive advantages that will be addressed in the next paragraph.

ADVANTAGES OF A SUSTAINABLE VALUE CHAIN

The use of a sustainable value chain leads to the following advantages of economic unity (Eijs, 2020: 12) .

1. Achieving a sustainable competitive advantage and continuity for the longest possible period in the market as a result of adhering to the environmental legislation and laws in force and meeting the requirements of customers by providing sustainable products that are safe for human health and reducing pollution rates.
2. Reducing costs by reducing waste, gases and toxic fumes, which leads to reduced fines and sustainable taxes, as well as reducing handling and maintenance costs as a result of using clean engineering techniques.
3. Improving the quality of products by contracting with suppliers who take into consideration environmental requirements and controls, as well as improving the quality and efficiency of production processes through the use of cleaner production techniques.
4. Improving the reputation of the economic unit as a result of its contribution to reducing pollution rates and manufacturing sustainable products

5. Preserving natural resources and optimizing energy consumption by reducing the amount of raw materials used in production that are recyclable and bio-disposal.
6. Reducing waste by designing products that are recyclable and bio-disposal.
7. Conservation of natural resources and optimum consumption of energy by reducing the amount of raw materials used in production that are recyclable and bio-disposable. (Tan&Zailani,2009: 239)

The researcher notes that transforming the activities of the economic unit into sustainable, environmentally friendly activities leads to transforming the economic unit into a sustainable unit, which is reflected in improving its reputation and obtaining government support and support for environmental protection associations in the world and associations that adopt sustainable thought.

SUSTAINABLE VALUE CHAIN ACTIVITIES

Many researchers have proposed a set of activities for the sustainable value chain, which often consists of six or seven main stages, which can be summarized as follows:

First: Sustainable Research and Development:

Sustainable research and development is defined as a set of principles, tests, and foundations needed to assist engineers in designing sustainable products and sustainable technologies by developing and testing products over their lifespan. (Kung &huang, 2016:114) .

The environmental problems of climate change, ozone layer depletion, air and water pollution also require long-term strategies, and urgent and effective measures to find socially, economically and environmentally acceptable solutions. (European Communities 2006) .

Where recent research shows that human progress and well-being are closely related to sustainable development, especially environmental capital (renewable and non-renewable resources), and there is still a need for more research on modern economic models, as human growth cannot be achieved without economic growth because the problematic aspects of economic growth do not stem only from the negative effects on the environment. But there is a need to redistribute wealth and income within and outside countries in order to promote the transition from a materialistic to a participatory society, so an in-depth analysis must take into account the full range of environmental and social aspects

of well-being and quality of life (Filho, et.al, 2018:134).

Investments in research and development are also directly related to environmental innovations, as the latter is a common strategy adopted by many companies in order to achieve superior environmental and economic performance through the development of production processes or exploitation of a product, service, process, management, or new work methods, which in turn lead to reduce environmental risks. (Lee & Min, 2015:3).

Second: Sustainable Design:

The sustainable design varies according to the type of activity carried out by the economic unit. Sustainability is not a single area of business, as sustainable design is a term used to describe the use of sustainability principles in the design and development of industrial and commercial products. (Mr. Fahmy, 2018:221) .

Sustainable design is defined as the creation and management of a healthy environment based on the efficient use of resources, as there are a set of principles on which sustainable environmental design is based. Among these principles are:

A- Working to provide the current resources to ensure the future generations' share of these resources.

B- b- Maintaining a clean and healthy environment in terms of topographical changes and the degree of air, water and soil pollution.

C- c- Take measures related to reducing waste of materials.

D- d- Use of renewable energy sources (solar and thermal energy).

Sustainable environmental design also seeks to provide an appropriate framework for the ecosystem by integrating both environmental and human values. The main objective of environmental design is to meet environmental sustainability by finding ways to manufacture goods and provide services, while reducing resource consumption and avoiding environmental damage to a reasonable degree. (Aktas,2013:58).

Economic units that take into account environmental requirements and controls when designing their products focus on reducing the rates of negative impact of products on the environment since the start of manufacturing operations, as well as forming an efficient engineering cadre to study the possibility of conducting a disassembled analysis of the product after its disposal by the customer to benefit from it in several areas, including reducing The cost of manufacturing and contributing to environmental protection

through recycling products. (Al khattab, et.al, 2015:591) .

Stages of sustainable design: Sustainable design is a broad concept that includes efficient and effective building of ideas and their development through a process that leads to product development, as there are four stages of the typical design process and these stages are: (Al-Jalihawi, 2020:90):

- The planning stage and problem identification.
- Conceptual design stage: In this stage, the product function is defined and alternative concepts are established, as well as design specifications are defined.
- The initial design phase, which includes developing and evaluating alternative concepts and selecting the best one.
- Detailed design stage: It is the stage in which the best alternative is developed in detail, in addition to conducting further evaluation and improvement and defining the necessary requirements in the manufacturing process, maintenance, documentation, and communication.

From the foregoing, it becomes clear that sustainable design is the basis for the transition to sustainable manufacturing and the recycling of production waste, and the possibility of launching the designation

sustainable value engineering on the integration between sustainable research and development and sustainable design, according to the views of a group of researchers that value engineering starts from research and development activity, while Value analysis begins with the manufacturing (production) processes.

Third: Sustainable Manufacturing:

Sustainable manufacturing practices are considered one of the most important initiatives to confront the effects of the expansion of industrial activity, not only on the level of environmental performance, but extend to improving the economic, environmental and social performance of manufacturing practices. Sustainable industrialization is evaluated as the integration of social, environmental and economic aspects also recognized as the three dimensions of sustainability (Dwivedi, et. al, 2019: 2), sustainable manufacturing involves developing sustainable products by reviewing the entire product life cycle, implementing sustainable manufacturing processes and systems that minimize negative environmental impacts, rationalizing material and energy consumption, creating a safe working environment for people, and achieving economic and social benefits. Sustainability is a driver for innovation, innovation promotes growth and progress in manufacturing, and

industrialization is a driver for generating wealth and societal well-being. The well-being of society and economic growth depend largely on the level and quality of education and training. (27 Kumar et. al, 2019 :).

Sustainable manufacturing includes the manufacture of "sustainable" products and the sustainable manufacturing of all

products. Where the former consists of renewable energy manufacturing, energy efficiency, sustainable buildings, and other "sustainable" products related to social justice, the latter emphasizes the sustainable manufacturing of all products with full sustainability in mind. Figure (1) shows the basic elements of sustainable manufacturing. (27 Kumar et. al, 2019 :)

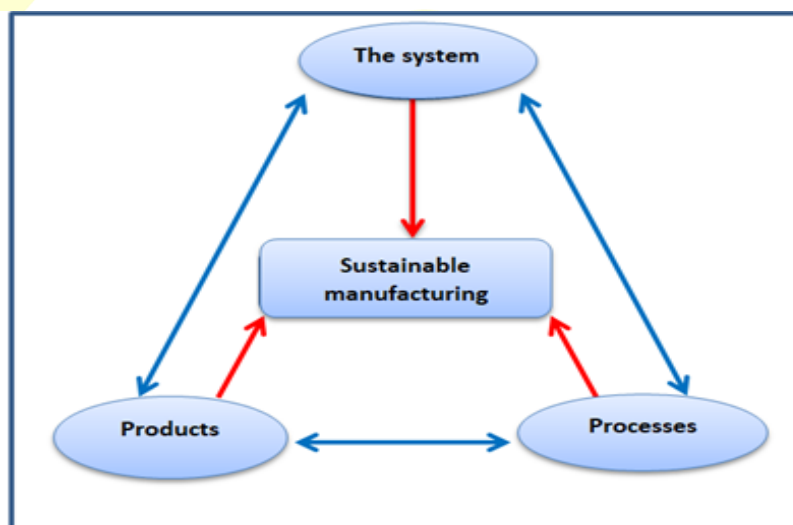


Figure (1)

The basic elements of sustainable manufacturing.

Source: Kumar, S. D., Ghose, J., & Mandal, A. (2019). Thixoforming of light-weight alloys and composites: an approach toward sustainable manufacturing. *Sustainable Engineering Products and Manufacturing Technologies*, 25–43.

Sustainable manufacturing is more comprehensive than traditional manufacturing and green manufacturing as well as cleaner production, because it deals with the three components of sustainability (environment, economy and society), as it includes all environmental concerns, such as pollution, toxicity of materials, and greenhouse gas emissions, and is not

limited to those concerns. Uses both technological and non-technological solutions, , starting from the selection of materials and production processes, down to the organizational tasks and performance reporting, as manufacturing has developed through several stages, namely, traditional manufacturing, lean manufacturing, green manufacturing, and

then sustainable manufacturing, which is the most advanced stage. (Al-Jalihawi, 2020: 92).

Fourth: Sustainable Marketing:

Sustainable marketing is a type of management process that identifies, anticipates and meets the requirements of consumers and society. This process can be profitable and sustainable. (Kung & Huang, 2016:114).

Sustainable marketing represents a new trend that leads to sustainable development, as the marketing process based on a commitment to integrate economic, social and environmental development goals into marketing strategies to provide a sustainable product. Pricing, distributing, and promoting it in a sustainable manner in a way that works to achieve a balance in the interest of the individual, the economic unit, and future generations, through the processes of innovation and value creation in partnership with the customer, in order to gain a sustainable competitive advantage in the markets. (Abdulaziz, 2020: 1090).

Sustainable marketing also depends on a set of principles that work to better understand it, and these principles are: (Cetin & Gul, 2018: 448):

A- Customer-oriented marketing: It is the planning and presentation of the marketing activities of a

business from the point of view of the customer.

B- b- Customer Value Oriented Marketing: The company dedicates most of its resources to marketing investments aimed at building value for customers.

C- C - Innovative Marketing: It is necessary for the company to strive hard to achieve progress in the field of marketing. He argues that companies that ignore new and better ways of doing business will lose business in favor of more innovative businesses over time.

D- Responsible Marketing: He has included the mission of business as a principle of sustainable marketing, which defines it in terms of product and not in narrow terms but in social terms.

Sustainable marketing has three dimensions: environmental, social, and economic, as the goal of community-oriented marketing is social benefit and equality, while environmental-oriented marketing aims to obtain a healthy environment, and consumer-oriented marketing aims to obtain green products. et al, 2019:85).

Fifth: Sustainable Distribution:

Among the actions that can be taken in the sustainable value chain with regard to the sustainable distribution policy to

protect the environment, where necessary actions must be taken to ensure that the product is distributed using less fuel, and place the points of sale in such a way that customers consume as little time and fuel as possible. In sustainable distribution, measures such as environmental sensitivity, less carbon emissions with less fuel, and micro-transportation are important. For this purpose, companies that prioritize green marketing either implement their own environmental distribution activities or work with environmentally sensitive distribution companies or Giving importance to internet marketing. (Ondogan, 2018: 102).

The sustainable distribution also aims to reduce emissions of gases issued by the means of transport specialized in transporting products, and distribution does not necessarily mean the means of transport, but rather includes the place where the customer can buy the product in a safe environment: (Mahmoud 28, 2018):

Sixth: Sustainable disposal and recycling:

Manufacturing companies return their products, parts and materials from consumption sites for reuse, recovery of residual value or disposal (Grant, 2013, 151), in other words, the flow of surplus or unwanted materials, goods or equipment to the company through the special logistics chain It can be reused, recycled or

disposed of safely and does not affect the environment. (Business Dictionary, 2016), this is because growing environmental concerns have forced organizations to undertake counterproductive activities such as product return, resource reduction, recycling, material substitution, and material reuse. Waste disposal, and recycling, as the reverse activities in the value chain represent an introduction to innovative services for the economic unit, and may have an important impact on the strategic performance of the economic unit in terms of market effectiveness and internal cost efficiency, which can contribute to increasing revenues through growth market, and service increase. and improve customer satisfaction.

Quality Costs:

Through the foregoing, quality costs can be defined as the total expenses incurred by the organization in achieving and maintaining good quality as well as in managing poor quality in all stages of its operations in order to achieve the highest level of customer satisfaction (Donauer, et.al, 2015: 2).

It is also defined by (Neyestani, 2017:32) as the price of “conformance” and “non-conformity, where the price of conformity is the price required to ensure that things are going right, and the price of “nonconformity” is the expense incurred in doing the wrong things. This concept is

more in the manufacturing sector because of the need to comply with the specifications and standards set by the company or customers.

Martínez & Selles, 2014: 2) defines quality costs as “the total costs incurred by investing in the prevention of non-conformance with requirements, and the evaluation of a product or service for conformity with requirements and failure to meet requirements”. This means: they are costs that will disappear if there is no possibility of making mistakes.

Schiffauerova, 2006:1 & Thomas and Narong, 2008:8 also agree that quality costs “are the costs incurred to ensure error-free operations, It is divided into a group of conformity costs and non-conformance costs. Whereas, the costs of conformity: are the costs incurred to prevent the occurrence of poor quality, and the costs of non-conformance: are the costs of poor quality as a result of the failure of products or services to conform to specifications.

TYPES OF OVERALL QUALITY COSTS AND THEIR CLASSIFICATION:

1. Apparent quality costs: The apparent costs of quality consist of two main types: control costs, which include prevention or prevention costs, and evaluation costs. The second type is failure costs, which include internal failure costs and external failure

costs (Sower, et al, 2007: 124). The following is a brief explanation of these costs, as follows:

A- Prevention costs: Costs pertain to activities that reduce or eliminate the production of defective goods or provide a service that is below the standard level, and economic units have found that the cost of prevention is less than the cost of repairing defects after they have occurred (Garrison, et.al, 2015: 67), and therefore the costs that occur to prevent Production of products that do not conform to specifications (Drury, 2008: 176) or they are the costs associated with preventing defective production that does not meet the needs and expectations of customers (Krajewski, et.al, 2010: 176).

B- Evaluation costs: For the purpose of discovering products that do not conform to specifications, evaluation costs must be spent, which represent the costs of maintaining the level of quality through the means of official evaluations of the quality of the product, or they are the costs of examination and testing in order to ensure that the process or product is acceptable in terms of

conformity with the specified quality standards (Chase, et.al, 2001:269).

C- **Internal failure costs:** Internal failure costs occur when the product does not conform to its design specifications, and Juran believes that these costs disappear in the absence of defects in the product before it is shipped to the customer, and therefore these costs are related to errors or defects that occur within the economic unit, so they are the costs It occurs when a defective product is detected before it is shipped to the customer (Horngren, et.al,2021:753).

D- **External failure costs:** The costs of external failure occur in the

event that the customer receives a product that does not conform to the specifications so that it cannot meet his needs and expectations, as (Juran) emphasized that these costs disappear when there is no external defect, and since these costs arise after the customer receives the product, they are related to his service. Thus, they are the costs that arise when the defective product has been delivered to the customer (Krajewski, 2005: 196).

After identifying the main elements of total quality costs, it is possible to indicate the stages of the emergence of these costs elements before, during and after production and after the sale, as this can be illustrated through Figure (2):

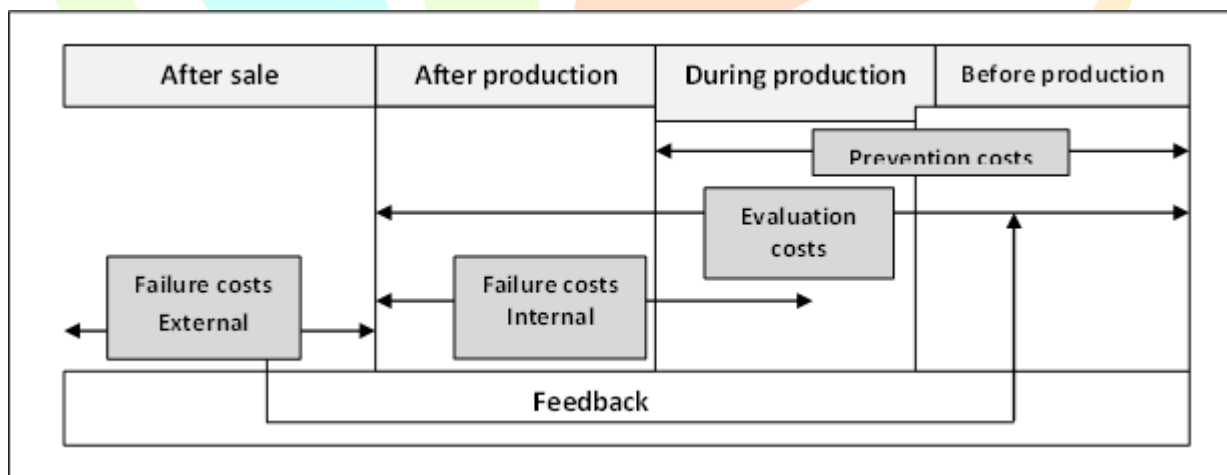


Figure (2)

The stages of the emergence of overall quality costs

Source: Kinney, Michael R. , Prather-Kinsey, Jenice & Raiborn, Cecily, (2011) "Cost Accounting : Foundations and Evaluation", 6th ed., Thomson South-Western, USA, p:757.

2- Hidden (hidden) quality costs: There is another term synonymous with it, which is the intangible costs, which mean the costs incurred as a result of the lost profit due to the effect of lost sales and the effects of lower prices, and many researchers point out that it is difficult to measure these costs, which led to the inability to record them in the books of the economic unit, where the hidden quality costs extend to the reputation of the facility, and its loss to many of its current and prospective customers, and therefore the hidden quality costs are a strong motive for the facilities to adopt one of the improvement approaches.

IMPORTANCE OF QUALITY COSTS:

The advantages of accurate measurement of quality costs include focusing on areas of poor performance that need improvement, assistance in overall quality control, and raising the level of competition in the company. And benefit through high quality and low costs. It was also found that after adopting the quality cost system, there is a decrease in customer complaints, rework and scrap, warranty expenses, failure costs and an increase in sales volume. As concluded (Rasamanie& Kanapathy, 2011). Also, the implementation of a quality cost reporting

system brings benefits to the organization. Quality costs must be quantified, as spending money on quality improvement programs without identifying quality costs results in little or no impact on the financial outcome (Schiffauerova and Thomson, 2006). Rodchua (2006) stated that firms can lose money because they fail to take opportunities to reduce quality costs.

THE ROLE OF THE SUSTAINABLE VALUE CHAIN TO REDUCE QUALITY COSTS:

The sustainable value chain works to exclude activities that do not add value to the sustainable product, in addition to that each stage of the chain is associated with a certain type of quality costs, and some types of quality costs may overlap at different stages in the sustainable value chain, we note that in the research and development stage And the design stage, and the manufacturing stage, the economic unit incurs prevention costs, which include quality planning processes, quality training, and other quality costs for this stage, as for the costs of prevention, they fall into the three stages mentioned above in addition to the stage of sustainable marketing, where the economic unit incurs this type of costs such as examination, selection of raw materials and finished products and others, and then the costs of

internal failure enter into Both the manufacturing and sustainable marketing stages, and these costs that work to address errors and defects of the product before it is put to the market, and the last type enters the stages of distribution and sustainable after-sales services, as these costs are considered as an indicator of the quality of the product, the lower these costs are, it indicates The product is of high quality.

Quality costs represent what the company's activities consume along the sustainable value chain to obtain products of the required quality (Garrison, et.al, 2015: 67).

The following is an explanation of each of the four components of quality costs and their connection to value chain activities:

1. Prevention costs: Prevention costs include quality engineering and quality planning, and this is related to design activities according to simultaneous engineering. It also includes the costs of quality training, supplier evaluation, and preparing quality reports, which is related to research and development activity. It is worth noting that the costs of prevention extend to all sustainable concurrent engineering as it can provide great returns for the company by reducing quality costs related to (configuration and

preparation, design, documentation and results, production).

2. Evaluation costs: The evaluation costs include the necessary inspection and testing operations for raw materials, production under operation, and finished production in light of the dimensions of sustainability, as well as the costs of evaluating inventory and equipment used in the examination (Horngren, et.al, 2021: 779). The researcher believes that these costs are related to the production activity only, and after documentation and results are done under simultaneous engineering, it may be in conformity with the specifications or not, and thus the costs of repairing it will fall within the costs of internal failure.

3. Internal failure costs: These costs occur due to the poor quality of the product, which entails reworking the damaged units and dismantling the defective product, in order to repair it and make it conform to the specifications, and this is before it is sent to the customer: 66) 2015 (Garrison, et.al) and it is linked to an activity Production within simultaneous engineering stages.

4. The costs of external failure: (Al-Sharifi, 2005: 64) emphasized that

the costs of external failure are the result of several reasons, including:

- The inability of market research to translate the needs and desires of customers to product designers.
- The absence of preventive measures resulting from defects or deficiencies in the products. The costs of external failure are the warranty, customer complaints, and the repair of the defective product after shipment to the customer, and this is related to the activities of distribution and customer service. External failure is also associated with design activity within the simultaneous sustainable engineering stages. , as the improper design of the products may lead to the products being unsuitable for use and thus not satisfying the customer, as it is linked to production due to the inefficiency of inspections and stock assessment.(Horngren, et.al, 2021:779) .

CONCLUSIONS

RECOMMENDATIONS:

Conclusions:

- 1.The use of the sustainable value chain reduces pollution and emissions from factories and the economic unit, reduces waste of

resources and waste, and results in reduced costs.

- 2.The existence of a theoretical framework for the sustainable value chain, which is one of the important techniques in controlling production from the stage of research and development to after-sales services, which provides an opportunity to learn about transforming traditional products into green products that help reduce costs for the economic unit.
- 3.The global trend towards consuming sustainable products is a major motive for directing modern costly technologies towards environmental issues.
- 4.One of the reasons for using the sustainable value chain is the environment in which the economic unit resides, which is rapidly changing, for example the electronic industries sector, and an environment in increasing demand.
- 5.The sustainable value chain, value engineering and total quality contribute to providing products that benefit the customer, the economic unit and the society as a whole.
- 6.Sustainable products are distinguished from traditional products in that they take into account environmental standards,

from the manufacturing stages of the product to disposal.

7. The sustainable value chain is the most appropriate technique for greening products because the process of determining the cost of a product that is safe on the environment and does not cause harm.
8. A sustainable value chain reduces the time needed to build a new, high-quality, low-cost product.
9. The use of the sustainable value chain is reflected in a good working cadre capable of contributing to reducing costs and preserving the environment.

Recommendations:

1. The necessity of using the economic unit of the sustainable value chain, such as modern cost-effective techniques, in calculating the cost of

its products in order to reach the real cost of the safe product.

2. The researchers recommend the necessity of economic units to include their labor cadres in courses that educate them on the sustainable value chain for its positive repercussions on the environment and society and the reduction of costs.
3. The necessity of directing modern cost-effective techniques to serve the environment due to the global trend of caring for the environment due to environmental pollution and the decline of natural resources, especially the scarce ones.
4. The researchers recommend the need to encourage the dissemination of the culture of using and selling sustainable products in the local market, especially after reducing its cost

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