

The effect of Corona virus on increasing the costs of failure

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Abstract

The research aims to shed light on the costs of failure (internal and external) and in a particular the costs of external failure, which are among the most dangerous types of costs and whose rise contributes to high quality costs in general, that leads to higher costs of the product and thus an increase in its market price, in a way that makes the company lose its current and future customers. The Corona virus outbreak caused a problem in the production process, besides, the marketing process of companies in different sectors in a manner that led to an increase in failure costs in general as a result of companies' failure to produce products on time and their failure to deliver products to customers on time. As one of the most important findings of the research is that companies' inability to meet the needs of customers has led to higher costs of failure, especially the costs of external failure, which are among the most dangerous types of costs being related to the company's reputation and position in the market.

Keywords: virus, corona, failure costs, quality costs.

Introduction

The outbreak of the Corona virus has caused many problems for companies, whether they are production or service, as it has led to a hindrance in production processes and in the delivery of products to customers on time. Which led to increase in failure costs incurred by the company. The costs of failure, which are both internal and external, are considered as of the quality costs. Where quality costs are divided into four categories (prevention costs, evaluation costs, costs of internal failure and costs of external failure). Moreover, It is recognized that the costs of external failure are among the most dangerous types of costs, being costs related to the organization's reputation and market position. Failure to meet customers' requirements and needs in the specific time will lead to the loss of existing customers and future customers' refusal to deal with this organization, as well as the costs of legal cases that raise against the company as a result of its negligence in meeting the customer's requirements.

Research Methodology

First: the research problem: Studying the relationship between Corona virus outbreaks and increasing the failure costs are the problem that research is trying to find a solution to.

Second: - The aim of the research: This research sheds light on the relation that connect the failure costs with Corona virus, as there is an increase in failure costs due to the spread of the corona virus.

Third: The research hypothesis: The research depends on the following hypotheses:

- 1- The prevalence of the Corona virus led to higher costs of failure.
- 2- The spread of the Corona virus resulted in an increase in the quality costs in general.
- 3- The increase in the cost of quality has led to an increase in the cost of products and services, including price increases.

Fourth: Methods of data collection: Relying on a set of methods to collect data, such as scientific sources represented in Arab and foreign books, periodicals and research, as well as the International Internet Information Network.

1. Quality costs

The International Standardization Organization (ISO) views quality as the set of characteristics of a product or service that is eligible to respond to the expressed or implied needs. Accordingly, the quality has many dimensions, including those that are suitable for use and conform to specifications. In the light of those concepts and dimensions of quality, the concept of quality costs can be diverted to the money that the company spends to maintain the required quality level, and in a way that helps the administration to take the appropriate decision to prevent the achieved losses from not caring about quality [1] (Al-Khanaq and Al-Rubaie, 2005: 3-4) Quality costs were also defined as the costs borne by the organization in order to reach the required level of quality from the customers' point of view, resulting from discovering the defective during the production process, as well as monitoring the activities of operations in order to identify and address areas of weakness.[2] (Mezher and Sultan, 2018: 189) Drury defined quality costs as the costs that relate to materials and products that meet quality standards.[3] (Drury, 2000: 902).

The first pivot: a suggested cost (good quality costs) and account for up to 50% of the quality budget, divided into two parts:

1- The cost of prevention represented in appointing consultants and employees to coordinate quality programs.

2- The cost of evaluation and focuses on internal evaluation programs that take place from within the entity or the external evaluation that is carried out from outside the authority through specialized bodies to review and evaluate the quality.

* The second axis: negative cost (poor quality costs) and drains up to 50% of the quality budget and is divided into two parts:

A- The cost of internal defects and errors (internal failure) that occur during the performance of the work.

B. The cost of external defects and errors (external failure) that are discovered after the malfunctions have to be completed.

The two researchers believe that quality costs can be defined as the costs that arise to achieve the customer's needs for goods and services, that is, they are costs that focus on activities and associated costs that add value to the customer (good quality costs), as the focus on these costs leads to disposal or reduction Of unnecessary activities that do not add value to the customer and the costs associated with it (poor quality costs). This reduction in activities and associated costs should not affect the specifications required by customers, and all of this leads to a reduction in product costs while maintaining the quality of the products. N goods and services. The two researchers will review the costs of good quality (prevention and evaluation) and the costs of poor quality (internal and external failure) as follows:

1.1 Prevention Costs:

Prevention costs are defined as the costs that occur to remove defective units before production.[4] (Zimmerman, et.al., 2001: 430) It includes the following costs: -

Quality training costs, equipment maintenance costs, supplier insurance costs, product redesign and process improvement.[5] (Difaeii and Alkhalaf, 2019: 99) Besides, prevention costs includes the following costs: -

- A. Quality planning
- B. Review product design and operations
- C. Education and training for quality jobs
- D. Collecting and analyzing quality data
- E. Continuous Improvement of Operations [6] (Al-Yamour, 2008: 5)

The researchers believe that the costs of prevention are the costs that occur to prevent the production of poor and non-conforming products and therefore do not meet the needs and aspirations of customers, therefore work must first on studying the market and knowing the desired products more than the customer. In order to design a product that meets customers' desires.

1.2 Appraisal Costs:

The evaluation costs include all examination and testing activities that take place in the organization to ensure that a defective product does not reach the customer. Theoretically, these costs are unnecessary if everything is done right at first sight.[7] (Al-Gargooli, 2004: 20) The evaluation costs are defined as the costs that occur to ensure that the materials and products meet the quality matching criteria.[3] (Drury, 2000: 901) Kaplan also defined it as the costs associated with examining the products to ensure that they would meet customer requirements.[8] (Al-Mousawi and Kazem, 2019: 554) It includes the following:

- A. Costs of checking and testing the raw materials purchased.
- B. Production inspection and testing costs are in operation.
- C. Complete production inspection and testing costs.
- D. Costs of checking and testing the production process on the production line.
- E. The salaries of the inspectors.
- F. Costs of the disappearance of inspection devices.[9] (Sheikhly, 2006: 64)

The researchers believe that evaluation costs are costs that aim to ensure that the products conform to the planned specifications that meet the needs of customers, and that there should be no overrun on these specifications.

1.3 Internal Failure Costs:

Internal failure costs: These are the costs of repairing and correcting faults and faults in non-conforming products (recycling, re-monitoring, retesting, verification, and repair).[10] (Dhiyab, 2019: 20) and examples include the following: [11] (Al-Sharifi, 2005: 51)

- 1-Scrap: represents the loss that occurred in the process of extracting the required level of quality.
- 2- Defective screening costs: are the costs related to identifying the defective that is destroyed or remanufactured.
- 3- Reworking: It is the cost of repairing and treating products that do not conform to the quality characteristics.
- 4- Stopping in the machines: represents the costs related to the stopping and holidays of the machines, which have a direct impact on the quality of the product
- 5- Retest: It is mandated to report why the production process produces poor quality products.

The two researchers believe that the costs of internal failure occur before the products are delivered to customers, that is, their faults are discovered before they are delivered to the customer. Moreover, the organization takes corrective measures to ensure that the product reaches the customer properly without affecting its reputation in the market and thus this procedure will cost her vast sums to correct these products.

1.4 External Failure Costs

They are the costs resulting from discovering defects in the product after the customer obtains it, and they represent invisible costs that are difficult to measure [7] (Al-Gargooli, 2004: 20). Examples include the following:

A- loss of goodwill that affect business in the future. Maintenance.

B-warranty costs and complaints of affected clients that take time,

The costs of external failure consist of two parts, apparent costs and hidden costs.[12] (Jassim and Najafi,2019:728)

The researchers see that the costs of external failure occur after the products are delivered to customers, meaning that the customer has received a poor quality product with defects. All of this leads to customer dissatisfaction with the organization's products, and the costs resulting from the customer's dissatisfaction with the organization's products are among the most dangerous types of costs. As it leads to a loss for the current customer in addition to the failure of the expected customers to purchase the organization's products, therefore, the precautionary measures that prevent the arrival of such products to the customers must be followed, by focusing on the costs of protection.

1-5 The importance of quality costs:

Quality costs are one of the rings of the application of total quality management in industrial, commercial or service institutions, as they are costs that are spent in order to obtain products or services free of defects. However, the most important characteristics of measuring quality costs can be identified from the administration's viewpoint as in the following:

- 1- Quality costs are used as a tool to measure the efficiency of implementing quality control programs.
- 2- It is also considered a tool for identifying weaknesses, in addition to being considered an aid in the planning process for high quality products and services.
- 3- Quality costs help in the control process, by showing what have been implemented in advance of the plans in place to reach the required quality. Besides, quality costs have a role in the process of future forecasting. [13]] (Jasim, 2019: 5)

2. Corona's effect on the costs of external failure

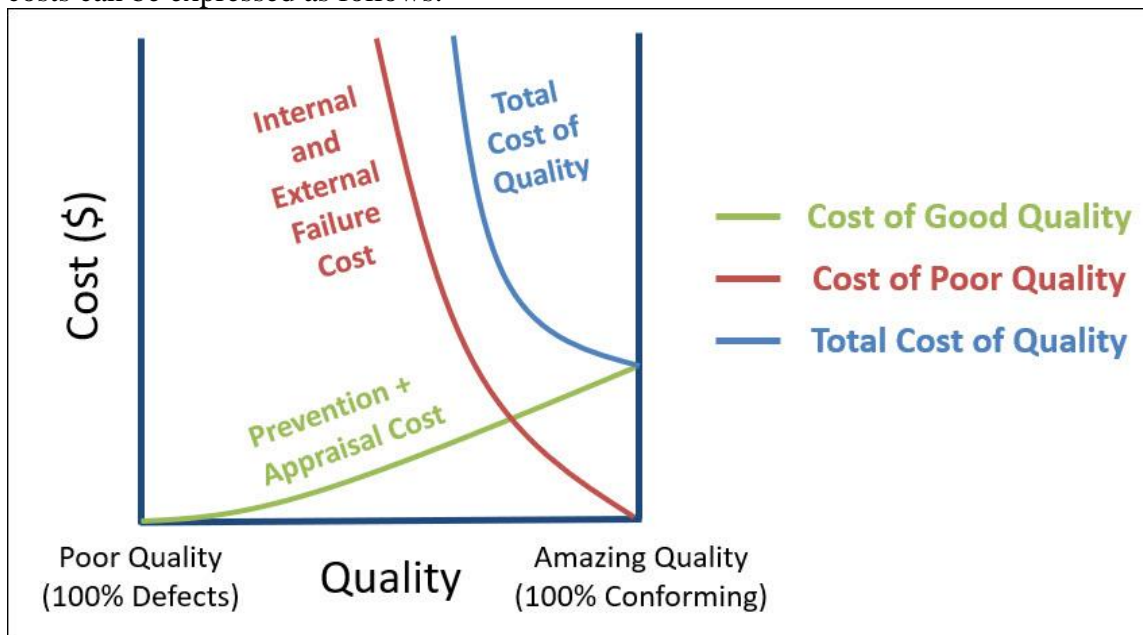
2.1 Definition of corona virus

The Corona Virus pandemic is an ongoing global pandemic of the 2019 Corona Virus Disease (Covid-19 or Corona Wuhan) caused by the Corona Virus 2 associated with severe acute respiratory syndrome (SARS-CoV-2). On the other side, the disease was discovered in December 2019 in Wuhan, central China, and it was named 2019-nCoV and was classified by the World Health Organization on March 11, 2020 (pandemic). The virus can spread directly between people, and its transmission rate (infection rate) appears to have increased in mid-January 2020. Several countries in Europe, North America and Asia Pacific have reported infections on their soil. The incubation period is about 5 days or more, and there is initial evidence that it may be infectious before symptoms appear. Unfortunately, symptoms include fever, coughing, and difficulty breathing, and may result in death. As of January 31, 2020, nearly 75,775 cases have been confirmed, including all provinces of China. Of the first 41 people confirmed to be infected, two-thirds of them were found to be linked to the wholesale seafood market in Wuhan, which also sells live animals. Chinese scientists have been able to isolate and quickly identify the genetic sequence of the virus so that others can independently develop PCR tests to detect the disease and it has

been announced that the 2019-nCoV sequence matches 75 to 80 percent of the SARS sequence, and more than 85 percent From by sk. But it is not clear if this virus is from the same killer series of SARS. As of April 3, 2020, the number of confirmed HIV infections has reached the threshold of one million people worldwide.[14] <https://ar.wikipedia.org/wiki/>

2.2 High costs of failure as a result of corona virus

The two researchers believe that the outbreak of the Corona virus has led to a total destruction in the global economy, as it has led to a disruption in production, and land, sea and air supplies across the world, and have affected all sectors with heavy losses. As a result, there has been a significant increase in failure costs, especially the costs of external failure, which are among the most dangerous types of costs. These costs are the costs of failure to deliver products on time to customers as a result of the health embargo imposed on various countries of the world. The costs of legal suits filed against companies as a result of their breach of their commitment represent a type of cost of external failure, and the company's loss of reputation results in significant failure costs resulting from customers' failure to purchase the company's products. All of this leads to an increase in quality costs as a result of this increase in costs of failure and thus an increase in the cost of the product in general, and an increase in its price in the market. The increase in failure costs can be expressed as follows:



The previous figure shows a high failure cost curve, and there is a failure to achieve the level of product quality due to the corona virus, which results in an increase in the total quality costs, in a manner that leads to an increase in the cost of the product. This results in an increase in the price of the product on the market. All of this is due to the company losing its present and future customer

Results

1- The outbreak of Corona virus led to the companies 'inability to respond to customers' requests and desires.

- 2- The companies 'inability to meet the needs of customers has led to higher costs of failure, especially the costs of external failure, which are among the most dangerous types of costs, as they are related to the company's reputation and position in the market.
- 3- The increase in the costs of failure leads to an increase in the costs of quality, and consequently an increase in the costs of the product in a manner that leads to an increase in the price of the product in the market.
- 4- The companies' loss of current and future customers as a result of failure to fulfill their wishes during the quarantine period due to the Corona virus pandemic.

Recommendations

- 1- The need for companies to coexist with this Corona virus. The World Health Organization has confirmed that this virus will last for a long time.
- 2- Companies must find solutions and alternatives through which to maintain their position in the market, by searching for ways in which they try to reduce the costs of failure, and thus reduce quality costs, which in turn reduces the costs of the product in a manner that leads to a decrease in its market price.
- 3- More research and studies are required to reduce the losses incurred by companies as a result of the corona virus outbreak.

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