

INVESTIGATING THE ROLE OF APPLYING THE QUALITY COST APPROACH IN THE MANUFACTURING SYSTEM IN THE PUBLIC SHAREHOLDING MANUFACTURING COMPANY IN JORDAN

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ABSTRACT

This study aims to identify the importance of implementing the quality costs approach in the industrial shareholding companies in Jordan, in addition to identifying the difficulties that limit the use of this approach. To achieve the objectives of the study, a questionnaire was developed and distributed to the managers of finance, production and sales in (50) industrial shareholding companies in Jordan, with three questionnaires per company. The number of questionnaires recovered was (140), (135) were used for analysis purposes. The results were obtained by analyzing the study data and testing its hypotheses. The results highlighted the of the implementation of the quality cost approach in the industrial shareholding companies in Jordan through contributing in improving the competitive position of the company, reducing customer complaints and gaining their confidence, reducing the number of rejected products, reducing the excessive use of machines, and reducing the production cost. The results also showed there is a need among the Jordanian industrial shareholding companies to implement the quality cost approach, but there are some limitations related to the application mechanisms. The study presented a set of recommendations and suggestions.

Keywords: Quality Costing Approach, Manufacturing Company.

INTRODUCTION

The global competition has put pressure on manufacturing companies to adopt modern production systems that achieve competitive advantage. This has led to increased attention to product quality and lower costs to compete in terms of quality and price in the global market (Saad & Mohammad, 2017). These changes have created synergies in accounting and administrative systems which have influenced how decisions are made. The quality cost approach is one of the accounting and administrative methods that help to meet the administrative needs by providing a general database to achieve the linkage between the

strategic objectives and continuous improvement of the product quality (Jasim & Raghad, 2018).

The quality cost approach is one of the modern accounting approaches adopted by the advanced organizations to achieve their goals in this direction, where the excellent access to the international markets through the quality and high productivity and low costs (Kurniawan, et al., 2020). This portal reveals the forms of waste that may be acceptable in method of minimizing the production systems and puts the management of production in front of a new vision of waste and ways to remove it, especially that the cost of quality not only the production process, but beyond all activities from research and development to the service of the consumer. The applying of the quality cost approach reduces failure to the minimum and reveals defects before delivery of products to consumers, which reduces the quality cost on the one hand and improve quality programs on the other (Mohammad & Abbas, 2016). The concept of quality has been associated with its costs since the poor quality represented an inefficient use of resources and energies as well as labor and time, resulting in high costs, which have had significant effects on the rise in production costs and total costs of the establishment (Sower et al., 2007).

Research Problem and Aim

This study seeks to shed light on the quality costing approach as one of the modern production systems which will pave the way for the industrial shareholding companies in Jordan to gain access to international markets through the superior quality of production, high productivity, low costs and other benefits achieved by this system (Jasim & Raghad, 2018).

The importance of this study is to explore the significance of applying the quality cost in the industrial shareholding companies in Jordan, especially since it is one of the modern systems that seek to improve the quality of products. Moreover, the issue of the quality costs approach is one of the most recent topics in Jordan.

The main problem posed by the study is that the global competition in our time has pressed the industrial establishments to adopt a strategy that includes modern means and systems of production in order to achieve a competitive position distinct. The control procedures effect on the financial reporting process in the companies (Almasria et al., 2021). The quality costing approach is one of the modern productive control approach adopted by the developed organizations to achieve their goal in this direction (Mohammad & Abbas, 2016; Kurniawan et al., 2020).

Therefore, it is possible to formulate the elements of the study problem as follows:

1. What is the importance of "quality costing approach" and its advantages?
2. What are the main components of quality costs?
3. What are the importance and necessity of applying the quality costing approach in the public shareholding industrial companies in Jordan?
4. What are the obstacles that limit the application of the quality costing approach in the public shareholding industrial companies in Jordan?

The purpose of this study is to investigate the concept of quality costs, its mechanism and its requirements in order to demonstrate the importance of applying the quality costing approach in the public shareholding industrial companies in Jordan and the difficulties of application.

Theoretical Framework

The importance of quality costs since long time has been reflected by the negative effects of poor-quality costs and the need to avoid and eliminate them. Quality costs occur from actions connected to quality of performance and quality of conformity. Most authors agree that quality costs are the costs that are spent to ensure the required quality standards are met, in addition to the cost of services rendered to customers after the completion of the sale process to achieve customer satisfaction.

Hornrgren defined the quality costs as "*the costs of producing poor quality products.*" He notes that this definition focuses on the quality costs caused by poor quality, while Kaplan defines it as "*a set of costs spent to maintain the quality required.*" This definition focuses on costs spent to prevent poor quality.

The quality cost is defined as costs spent for the purpose of preventing defects in production, detecting defects in the case of their existence or repairing defects after discovery or additional costs incurred for the purpose of improving production specifications according to customers' needs and desires (Abboud, 2008).

Quality costs also defined as (costs associated with the quality of the product or service, which is represented by the costs of prevention of defects and correction activities as well as losses arising from internal and external failure) (Alexandros et al., 2000).

Mezher and Sultan are considered to be the costs borne by the organization in order to achieve the required level of quality from the point of view of customers resulting from the discovery of defective during the production process as well as monitoring the operations activities in order to identify and address the weaknesses before the arrival of the defective product to the customer. (Mezher & Sultan, 2018). They can also be defined as amounts that are spent by the organization in order to obtain quality benefits. Quality costs have been classified into four categories according to the American Association of Quality:

First: Prevention Costs (PC)

These costs are incurred to prevent the production of products that do not conform to quality standards such as costs associated with design and engineering operation, quality protection systems, quality planning and quality training. Hornrgren defined costs of prevention as costs incurred to prevent products that did not conform to quality standards (Hornrgren et al., 2006).

Peimbert defined it as the costs incurred by the organization to prevent the arrival of poor-quality products to the customer. This type of cost represents the goal of Total Quality Management by doing things right (Peimbert et al., 2016: 6). Chaise defined it as the costs borne by the company within its effort to prevent defective items (Chaise et al., 2003).

Appraisal Costs (AC)

These are the costs requisite to guarantee that the materials and products comply with quality performance standards, such as costs associated with the test of raw materials and purchased parts, production inspection under operation, complete product inspection and practical tests. Hornrgren has defined it as the combinations that occur to discover non-conforming units (Hornrgren et al., 2006), while Martinez stated that the enterprise bears this type of cost when it provides an assessment of the operations level (Martinez, 2015). Al-Ali defined it as the costs which include the expenses resulting from the testing, measurement and analysis of the properties of the materials and parts, in addition to the services, processes and events that are directed to ensure that the production processes conform to the predefined standards (Al-Ali, 2010).

Internal Failure Costs (IFC)

The cost of industrial losses resulting from products that did not meet the quality standards that were discovered prior to shipment to the customer such as the cost of storage of damaged units, repair defects, rescheduling production, time of conciliation and disruption of production.

Slack cited the costs of internal failure and defined it as failure costs associated with errors. The American Society for Quality (ASQC) defined the internal failure represents costs arise due to the deviation of production lines from the control limits, the appearance of non-conforming units and planned quality measurements that require tailoring and recycling (Slack et al., 1998). Al-Nuaimi et al. (2009) identify that the company bears these costs before the product reaches the customer before it is put on the market. According to Bass and Lawton, the costs of internal failure are borne by the enterprise before delivering the products to the customers, which include:

1. Cost of rewriting the products failed to audit.
2. Cost of marketing.
3. Cost of scrap.
4. Cost of activities that do not add value. (Bass, Lawton, 2009).

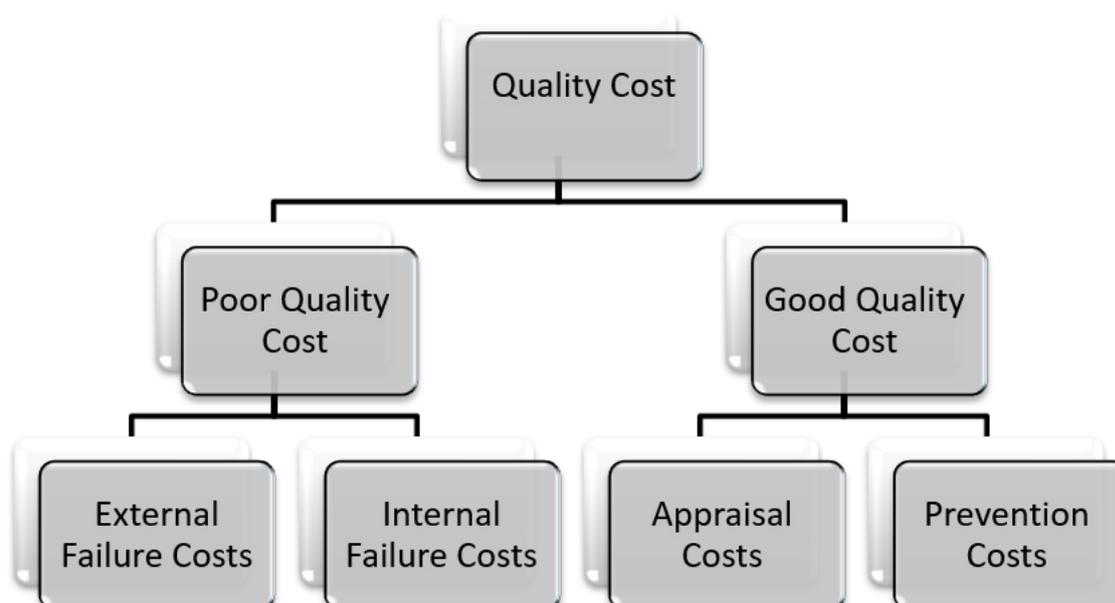
External Failure Costs (EFC)

The costs that related to shipping products that do not meet the quality standards to the customer such as the costs associated with repairs or the replacement of the goods during the warranty period, fines and penalties and the opportunity cost of future lost sales as a result of the company's reputation for defective production (Sower et al., 2007).

Russell, 2000 has defined the external failure costs as Costs charged to the company after the customer received a poor-quality product and it is mainly related to customer service (Russell et al., 2000). Al-Ali also defined it as the costs arising after the customer received the product at a low-quality level (Al-Ali, 2010).

The main categories of quality costs can be summarized as follows:

Main Categories of Quality Costs



Applying the quality costing approach benefits management in several aspects, the most important including:

1. Helps managers determine the financial importance of quality. Previous studies have shown that managers do not usually estimate the quality costs because these costs are combined with the costs of other departments and are not calculated through the cost system.
2. Helps to determine the relative importance of the quality problems facing the establishment. For example, quality costs may show that scrap is an important quality issue or that the company bears a huge cost of guarantee, and this information directs management to areas that need attention.
3. Helps managers determine whether the distribution of quality costs is a bad distribution, and then helps them improve, direct, and distribute these costs, and that quality costs should be directed more towards prevention and evaluation activities and less to failures.
4. Quality Cost Information provides the basis for budgeting quality costs as a tool to help management reduce overall costs and evaluate performance from one year to another.

Quality Cost Limits

1. Quality problems can be solved through management actions and not only by measuring and reporting the quality costs.
2. There is usually a time gap between the development of quality improvement programs in implementation and the results of these programs. When the programs are developed and implemented, quality control costs may increase. These costs will not begin to decline until after one year or more.
3. Some of the important cost costs may be removed from the cost report. These costs include the cost of the opportunity to lose sales as a result of poor product design or customer dissatisfaction, as well as the cost of senior management time spent on design and management of the quality program (Garrison, 2002).

LITERARY REVIEW

The previous studies on the subject of quality costs were reviewed in order to identify the main results and general indicators that resulted from these studies. Study Mezher, Sultan, (2018) entitled lean six sigma in reducing quality costs. The study intends to highlight the role of lean six sigma in reducing costs and increasing the profitability of enterprises by applying this approach. Study Jasim, Raghad, (2018) entitled The Role of Quality Costs in the Human Resources Development and Achieve Competitive Advantage. The research aims to clarify what is meant by developing human resources and the cost of quality, beside in the role that it contributes the costs of quality in human resource development, which leads to get customers for low-cost, high-quality products, a way that leads to earning the organization a competitive advantage.

One of the main conclusions of the research that focus on good quality costs (prevention and evaluation) leads to increase product quality and reduce costs, and achieve development. And that the development of human resources makes customers to receive high quality products at a reasonable price. This is done by focusing on good quality, costs which include human resources development costs. The most important recommendations is the need for human resource development, training and education for all that is new and evolving, in order to make them the elements of a quality contributing to the achievement of high-quality low-cost production. The need to gain a competitive advantage through human resource development process.

Hmmadi, Abboud, (2017) investigated the Iraqi Companies Awareness about the Importance of Quality Costs in Achieving Financial Savings. Cost is regarded as the most important factors of success which business organizations depend on to achieve competitive advantage, in order to enhance the possibility of their survival in the business environment, and therefore highlights the important role of the quality costs achieved through the continued of the Administrations of the Iraqi companies and service companies of the

importance of quality costs in achieving financial savings, and whether there are reasons or obstacles faced by those companies and prevent them from adopting the application of quality costs approach. To achieve the aims of the study descriptive analytical method has been and used questionnaire has been designed and distributed electronically to the study, 98 productive and service company in Iraq, data were preliminary results were analyzed using SPSS statistical software and the use of appropriate statistical results of a study that there is perception among Administrations Iraqi companies of the importance of quality costs approach largely amount to 76.01 of all the paragraphs, as well as the results of the study showed that Iraqi companies a sample study, which is supposed to be managing its work on the basic of quality, but it costs the quality of approach has not been applied and a large degree It amounted to 74.62, the presence of the reasons hindering the application of cost-quality approach highlights by a lack of awareness of the principles and concepts of the quality costs by Top management to tack companies, which in turn led to the absence of a decision of spreading the principles and concepts of quality costs within those companies.

Farah, (2016) examined the Measurement of Total Quality Costs and Its Impact on Supporting a Competitive Advantage. The research examined the measuring of total quality costing and its impact on supporting a competitive virtue, by studying on samples of foodstuff industrial company. The research comes out of several results such as: focusing on measure of failure of internal cost, this will draw kind of attention of management to give its full consideration to the quality program that gives guarantee of production class "A" without impurities.

The companies, sample of case study, examine the quality of degrading production. The said companies repair or substitute the degrading production to meet customers' acceptance and supporting competitive virtue. The necessity of the research is the contents of recommendations the company must measure the internal failure because it is important indicator to draw the attention of management to take necessary actions, to improve quality production, increase investment on the cost of prevention so as to reduce the cost of degrading production. It is an important issue for the company to increase capability of competitive i.e., acceptance of its customers. Arvind, (2011) investigated "*Behavior patterns of quality cost categories*". The aim of this study is to discover the behavior of different types of quality costs and to clarify the reciprocal relationship between these types of products in one of the small Indian industrial enterprises in order to optimize the distribution of sources in a manner that reduces the cost of quality and improve the profitability especially in small and medium sized enterprises Therefore, the behavior of the categories of the cost of quality will help to reduce them through the response of the cost element of quality as soon as the cost of another component is increased or reduced.

The study highlighted that there is a strong connection between prevention costs and internal failure costs. There is also a common relationship between evaluation costs and internal failure costs. The study concluded that if the matching costs were increased, the costs of nonconformity would be reduced. This study is based on the classification of previous studies into the importance of implementing the introduction of quality costs in industrial companies contributing to Jordan and this is will encouraged the investors (Almasria, 2018), and the problems faced by these companies in the application process. And highlight the importance of this approach, which reduces the failure to the minimum and reveals defects before the delivery of products to consumers, which leads to reducing the cost of quality on the one hand and improve quality programs on the other.

Research Hypotheses

Based on the theoretical framework and literary review, the hypotheses can be formulated as follows:

The first hypothesis (H1): There are no urgent necessities to apply the quality costing approach in the public shareholding industrial companies in Jordan.

The second hypothesis (H2): There are obstacles that limit applying quality costing approach in the public shareholding industrial companies in Jordan.

METHODOLOGY (STUDY POPULATION AND SAMPLE)

The study population included the Jordanian industrial shareholding companies (60 companies), (Amman Stock Exchange, March, 2019). (50) sample companies were selected for the study, which showed interest in the subject of the study and were applied the costing system and this sector is considered one of the main part of the Jordanian economic system (Alawaqleh, & Almasria, 2021). The questionnaire was divided into three parts, the first dealt with the demographic characteristics of the study sample, while the others dealt with testing hypotheses. The questionnaire was presented for arbitration to a group of professors specialized in the field of study. After adjusting the paragraphs of the questionnaire and commensurate with their ability to examine and test the hypotheses and achieve their objectives, it distributed to the directors of finance, production and sales in each company by three questionnaires each company recovered (140) out of (150) distributed questionnaire, (5) invalid questionnaires were excluded for analysis, i.e., the sample net (135) which is (75%) of the study population, which is represented according to the standards of scientific research. It has been analyzed according to the statistical package of social sciences (SPSS). The study used the descriptive analytical method for conducting the exploratory study on the necessities and determinants of applying the quality cost approach.

Statistical Methods Used in Data Analysis

In order to achieve the objectives of the study and test hypotheses, a set of statistical methods applied and adopted in this area, including:

1. Statistical averages and standard deviations for the analysis of respondents' answers.
2. Examine the validity and reliability of the hypothesis.
3. Test: One Sample T-Test to test the hypotheses of the study the existence of statistical significance of the difference between the mean of the hypotheses and the average measurement tool.
4. Test Chi-squared.

Study Tool

The five-dimensional Likert scale of questionnaire was used to describe sample descriptive responses. The study tool was developed to express the objectives of the study. The quantitative weights of the responses were explained as follows:

Quantitative Weights of the Responses

The level of importance of the sample members responses to the paragraphs of the questionnaire to indicate the level of their agreement and their understanding of the paragraphs as follows:

High	3.67-5
Average	2.34-3.66
Weak	1-2.33

Test the Study Validity

The questionnaire's study validity was tested by distributing it to a group of arbitrators with experience in teaching and work. The stability of the study instrument was verified. The stability coefficient (0.933) for all the paragraphs, and since it exceeded the coefficient of Cronbach Alpha, the accepted ratio (0.70), this means the possibility of adopting the results of the questionnaire and ensuring its credibility in achieving the objectives of the study. Table 1 shows the Cronbach Alpha coefficient by study variables:

Variable	Paragraph No.	Cronbach Alpha
The necessity of applying quality cost approach in the public shareholding industrial companies in Jordan.	18	0.939
Obstacles of applying quality cost approach in the public shareholding industrial companies in Jordan.	10	0.722
Total	53	0.933

Analysis of The Sample Members Responses

The first pivot: Analysis of the sample members' demographic characteristics:

Table 2 shows the demographic characteristics of the sample of the study according to gender, scientific qualification, scientific specialization, functional experience, and career status.

Variable	No.	Percentage %
Diploma	21	15.56
Bachelor	77	57.04
Master	26	19.26
PhD	11	8.15
Total	135	100
Accounting	63	46.67
Administration	39	28.89
Banking & Financial	30	22.22
Economics	3	2.22
Total	135	100
5 years or less	29	21.48
6-10 years	48	35.56
11-15 years	43	31.85
16 years or more	15	11.11
Total	135	100
Financial manager	45	33.333
Productive manager	45	33.333
Sales manager	45	33.333
Total	135	100

The analysis of the results of the first part of the questionnaire shows that 57.04% of the respondents were bachelor's degree holders, while the PhD class came last with a percentage of 8.15%. Thus, Managers of industrial companies are BA holders.

The highest rate of recurrence was in the accounting category at 46.67%. This is an indicator of the ability of respondents to understand the questions of the questionnaire and the subject of the study, followed by the category of management 28.89% decrease in the category of finance and banking by 22.22%. The category of economy came in last place with 2.22%.

The results of the previous table also indicate that the category of 6-10 years of experience came in first place with 35.56%, then the category of 11-15 years with 31.85% which indicates that the majority of respondents with medium or relatively long experience. Followed by the category (5 years and less) experience, with 21.48%. Finally, category 16 and above with 11.11%.

Testing Hypotheses

The first hypothesis: There are no urgent necessities to apply quality cost approach in the public shareholding industrial companies in Jordan.

The hypothesis was tested based on questions (1 to 18) of the questionnaire.

Table 3 shows the results of the statistical analysis of the questions concerning the importance of applying quality cost approach in the public shareholding industrial companies in Jordan.

No.	Paragraph	Average	St. Deviation
1	Applying quality cost approach in the public shareholding industrial companies in Jordan leads to reduce the down duration.	3.1522	0.4988
2	Applying quality cost approach in the public shareholding industrial companies in Jordan requires selecting suppliers who achieve the required quality level in the materials.	4.1144	0.9788
3	The public shareholding industrial companies in Jordan shall apply the quality cost approach.	2.9583	0.6887
4	The public shareholding industrial companies in Jordan are interested in applying quality cost approach	3.6125	0.5201
5	Applying quality cost approach in the public shareholding industrial companies in Jordan requires holding scientific seminars and training courses for their employees to explain this approach to prepare for applying it.	4.1141	0.9987
6	The technical development and the spread of the phenomenon of automation in the public shareholding industrial companies in Jordan facilitates applying quality cost approach	3.7798	0.8858
7	Applying quality cost approach in the public shareholding industrial companies in Jordan leads to the reduce wastes and repairs	4.0011	0.7616
8	Applying quality cost approach in the public shareholding industrial companies in Jordan leads to reduce the time and resources production process	3.8977	0.5664
9	The inability of traditional accounting systems to provide accounting data on quality costs	3.1127	0.8324
10	Applying quality cost approach in the public shareholding industrial companies in Jordan contributes more advanced performance development of standards in the fields of production, design and	3.5327	0.8876

	consumer satisfaction		
11	Applying quality cost approach in the public shareholding industrial companies in Jordan contributes in the economy in the use of materials	3.7675	0.9877
12	Applying quality cost approach in the public shareholding industrial companies in Jordan contributes to reduce the lost time of employment	3.4887	1.0322
13	Applying quality cost approach in the public shareholding industrial companies in Jordan contributes to reduce the rejected number of products	3.8877	0.7681
14	Applying quality cost approach in the public shareholding industrial companies in Jordan contributes to reduce the excessive use of machinery	3.8667	0.9876
15	Applying quality cost approach in the public shareholding industrial companies in Jordan contributes to reduce customer complaints and gaining their confidence	3.9795	0.7886
16	Applying quality cost approach in the public shareholding industrial companies in Jordan contributes to improve the competitive position of the company	3.9911	0.6416
17	Applying quality cost approach in the public shareholding industrial companies in Jordan leads to reduce waste materials and equipment	3.8817	0.5368
18	Applying quality cost approach in the public shareholding industrial companies in Jordan requires the replacement of more modern machines instead of the machines currently in use	3.9933	0.8476
	Paragraphs (1-18) combined with data on the importance and necessity of applying quality cost approach	3.7295	0.22841

Table 3 shows that the mean of the second paragraph answers was 4.1144 with standard deviation of 0.9788 which indicates the need for strong and honest relations with the suppliers so that the company can obtain the required quality in the materials to enable the company to fulfill its obligations and credibly with customers. The mean of paragraph 3 responses were 2.9583 with a standard deviation of 0.6887. This indicates that the quality costs approach is not effectively applied in public shareholding industrial companies in Jordan. Also, the mean of paragraph 4 responses were 3.6125 with a standard deviation of 0.5201, this confirms the existence of a real desire to apply this approach, while the answers of paragraph 5 mean were 4.1141 and a standard deviation of 0.9987. This means that the implementation of the quality costs approach in the industrial companies of public shareholding industrial companies in Jordan requires a great need to hold scientific seminars and training courses for their employees to explain this new approach to prepare for its application.

Note that the responses of paragraph 17 came at a mean of 3.8817, relatively high and with a standard deviation of 0.5368, where the rise of the arithmetic mean of the responses of this paragraph indicates that there is agreement among the respondents about the importance of free production process from damage and waste to obtain the required quality. The responses of paragraph 18 confirmed a relatively high mean 3.9933 with a standard deviation of 0.8476, the company has improve the quality of its products and restructure its business by replacing modern machines than those already used, which reduces machine preparation time and increases preventative maintenance capacity.

In general, the results of the data related to this hypothesis, which were measured through the second questionnaires section, showed that there is great support for the necessity of applying the cost of quality approach. The mean of the total questions was 3.7295, which is higher than the mean of the measurement tool 3, where the standard deviation for the total questions was 0.22841, this indicates the lack of variation between the responses of individuals answering questionnaires. In order to verify the statistical significance of the previous results, and to test the first hypothesis, the T - Test was used. Table 4 shows the results of the first hypothesis test:

Variable	T (critical value)	T (observed value)	Sig. *	df	Result
Application Imperatives	1.985	14.583	0.000	134	Rejected

Note: * The level of significance is not exactly zero, but is very close to zero, but the computer does not show the number after three decimal places if the figure is less than 0.001.

The results of T-Test Table 4 show that there are statistically significant differences with 95% confidence, where the t- observed value is 14.583, which is higher than the t-critical value 1.985 with the statistical significance 0.000. Since the rule of decision indicates acceptance of the null hypothesis If the t- observed value is less than the t- critical value and the null hypothesis is rejected if the t- observed value is greater than t- critical value, so it rejects the null hypothesis and accepts the alternative hypothesis, that is, there are urgent necessities for applying quality cost approach in the public shareholding industrial companies in Jordan.

The second hypothesis: There are obstacles that limit applying quality cost approach in the public shareholding industrial companies in Jordan.

This hypothesis was tested based on the questions 1-10 of the questionnaire. Table 5 shows the results of the statistical analysis related to the obstacles of applying quality cost approach.

No.	Paragraph	Average	St. Deviation
1	The lack of information and data related to the quality cost is an obstacle to the possibility of applying this approach	3.2236	0.9843
2	There is a lack of accounting knowledge among quality managers	3.1155	0.8974
3	The lack of qualified accounting competencies in industrial shareholding companies in Jordan is an obstacle to apply quality cost approach.	1.6648	0.9573
4	Applying quality cost approach leads management concerned about the results of its application	3.0084	0.8776
5	The lack of clarity of the applied procedures and practical steps to apply this approach	3.1158	1.0254
6	Lack of technology and equipment suitable for application	1.7724	0.5487
7	Applying quality cost approach in the public shareholding industrial companies in Jordan requires a high cost to prepare accountants, administrators, customers and transactions with suppliers	2.0086	0.8754
8	The management of industrial companies in Jordan has no knowledge about the importance of the quality cost approach and its advantages.	3.1148	0.9875
9	The administration's unwillingness to change from traditional systems to modern systems	1.6687	0.7859
10	The accounting and cost system applied in the public shareholding industrial companies in Jordan does not meet the requirements of applying quality cost approach	3.3944	0.8846
Paragraphs 1-10 together related to the obstacles of applying quality cost approach		2.6087	0.2854

Table 5 shows the answers on the obstacles of applying quality cost approach in the public shareholding industrial companies in Jordan.

The responses on paragraphs 3-6 have the existence of qualified accounting qualifications that require only training on the application procedures, in addition to the availability of the appropriate technology and equipment for application, where the arithmetic mean of these two paragraphs (1.6448, 1.7724) which is relatively low, The mean of responses on paragraph 7 was 2.0086 with a standard deviation 0.8754 to confirm that applying the quality cost approach does not require an increase in cost. The mean of paragraph (9) responses was 1.6687 which is relatively low with a standard deviation 0.7859, which explains why the administrations of the Jordanian public shareholding companies responsible for accounting and costs did not object to the shift towards applying the quality cost approach.

The responses related to paragraph 10 confirmed the need for amendment to the accounting and costing system currently applied, which does not meet the requirements of the quality cost approach, where the mean is 3.3944 and the standard deviation is 0.8846. However, the responses of the sample to the rest of paragraphs 1, 2, 4, 5 and 8 were relatively high arithmetic mean that there are difficulties that limit applying the quality cost approach.

In general, the results of the data analysis related to this hypothesis, which were measured in the fifth section of the questionnaires, showed that there were obstacles to apply quality cost approach. The mean of the total questions was 2.6087 with standard deviation 0.2854. In order to verify the statistical significance and to test the fourth hypothesis, T-Test was used. Table 6 shows the results of the fourth hypothesis test.

Variable	T (critical value)	T (observed value)	Sig.	df	Result
Obstacles	1.985	1.064	0.000	134	Accepted

Note from the table that the t-observed value 1.064 is smaller than the t-critical value 1.985. According to the decision rule, the second hypothesis is accepted, i.e., there are obstacles of applying the quality cost approach in the public shareholding industrial companies in Jordan.

CONCLUSION AND RECOMMENDATIONS

Through the theoretical framework, data analysis and hypothesis testing, it is found that there is an urgent need of applying quality cost approach, by reaching the following results:

1. Applying quality cost approach in the public shareholding industrial companies in Jordan contributes to improve the competitive position of the company, reduce customer complaints and gain their confidence, reduce the rejected number of products, excessive use of machines, and lost time of labor and develop more advanced performance standards in the fields of production, design and consumer satisfaction.
2. Applying quality cost approach in the public shareholding industrial companies in Jordan contributes to improve the quality of the products and reduce the cost of production by reducing waste of materials and equipment, replacing the machines used, choosing the suppliers that achieve the quality required in the materials, reducing the time and resources in the production process, Reducing exhausts and repairs, reducing non-availability time, and reducing manufacturing errors.
3. There is a desire among the public shareholding industrial companies in Jordan to apply the quality cost approach, but there are some determinants regarding the mechanisms of application. The results of the study showed that the most important determinants were as follow:
 - a) The applicable accounting and cost system does not meet the requirements of the quality cost approach.
 - b) Lack of information and data on quality costs.
 - c) The lack of clarity of the applied procedures and practical steps to apply this approach.

- d) The management of industrial companies does not have deep knowledge about the importance of quality costs approach and its advantages.
1. Increase interest in scientific research and cooperation with universities and research centers in the field of quality costs.
 2. Companies should pay attention to provide information about quality costs through reports.
 3. Focusing on preventive activities instead of quality inspection by improving the quality of operations and products, encouraging teamwork, good product design, intensive training for quality program workers and focusing on qualified examiners, which leads to reducing defects, improving competitive position and increasing profitability.
 4. Apply advanced technology because it improves quality, reduce cost and increase productivity.
 5. Take advantage of the experiences of companies that apply the "Quality Costs Approach" and coordinate with them.

REFERENCES

- Abboud, S.M. (2008). Cost Management, 1st. p, 1st. floor, National Library.
- Al Ali, & Abdel, S. (2010). Applications in Inclusive Quality Management, 2nd. Ed. Amman, Jordan: Dar Al Maseera for publishing and distribution.
- Alawaqleh, Q.A., & Almasria, N.A. (2021). The Impact of Audit Committee Performance and Composition on Financial Reporting Quality in Jordan. *International Journal of Financial Research*, 12(3), 55-69.
- Alawaqleh, Q.A., Almasria, N.A., & Alsawalhah, J.M. (2021). The Effect of Board of Directors and CEO on Audit Quality: Evidence from Listed Manufacturing Firms in Jordan. *The Journal of Asian Finance, Economics, and Business*, 8(2), 243-253.
- Alexandors, A., Mentsa, C., & Lacovidou, (2000). The Challenge of Measuring the Cost of Quality, 2000. <http://www.gr.edek.uni.cy>.
- Almasria, N.A. (2018). The relationship between internal corporate governance mechanisms and the quality of external audit process-empirical evidence from Jordan.
- Almasria, N., Airout, R.M., Samara, A.I., Saadat, M., & Jrairah, T.S. (2021). The role of accounting information systems in enhancing the quality of external audit procedures. *Journal of management Information and Decision Sciences*, 24(7), 1-23.
- Al-Nuaimi, Mohammad, A.A., Ratib, J.S., & Ghalib, J.S. (2009). Contemporary Quality Management. Introduction to quality management covering production, processes and services. Amman, Jordan: Dar Al Yazouri for publishing & distribution.
- Amman Stock Exchange, March, 2019.
- Arvind, C., & Dixit, G. (2011). Behavior patterns of quality cost categories. *The TQM Journal*, 23(5).
- Bass, I., & Lawton, B. (2009). Lean six sigma using Sigma XL and Minitab. Copyright by The McGraw-Hill Companies, Inc United State of America. www.mhprofessional.com.
- Chase, B.R., Davis, M.M., & Quilan, J.N. (2003). Fundamentals of operations management. 4th Ed. Mc Graw – Hill, Irwin.
- Garrison. R.H. (2002). Accounting Administration, translated by Mohammad Isam Addean, Dar Al Mareekh, Riyadh.
- Hornngren, C., Daters, S., & Foster, G. (2006). Cost Accounting: A Managerial Emphasis, Prentice Hall.
- Jasim, R. (2018). The Role of Quality Costs in the Human Resources Development and Achieve Competitive Advantage, *The Journal of Administration and Economics*, 41, 114.
- Kaplan, R. (2002). A Practical Approach to Quality Control, 2nd. Ed, Business Books.
- Kurniawan, M.P., Guritno, A.D., Purwantana, B., & Supartono, W. (2020). Production cost approach and material flow cost accounting as a step towards increasing responsibility, efficiency, and sustainability (RES): the case of palm oil mill in Banten Indonesia. *In IOP Conference Series: Earth and Environmental Science*, 425(1), 012042. IOP Publishing.
- Martinez, J.M.B., & Selles, M.E.S. (2015). A fuzzy quality cost estimation method. *Fuzzy Sets and Systems*, V 266.
- Mezher & Sultan. (2018). Al Mouthanna, *Journal for Management & Economic Sciences*, 8(4), 84-197.
- Mohammad, F., & Abbas, F. (2016). The Measurement of Total Quality Costs and Its Impact on Supporting A Competitive Advantage, Master Thesis, University of Sudan for Science & Technology, faculty of graduate studies.
- Murugan, R., & Kanagi, K. (2011). The Implementation of Cost of Quality (COQ) Reporting System in Malaysian Manufacturing Companies: Difficulties Encountered and Benefits Acquired. *International Journal of Business and Social Science*, 2(6).

- Peimbert-Garcia, R.E., Limon-Robles, J., & Beruvides, M.G. (2016). Cost of quality modeling for maintenance employing opportunity and infant mortality costs: An analysis of an electric utility. *The Engineering Economics*, 61(2).
- Russell, R., & Taylor, W.B. (2000). Operation management version, prentice – Hall Inc. 96.
- Saad Hmadi, M.A. (2017). The Iraqi Companies Awareness about the Importance of Quality Costs in Achieving Financial Savings, *The Journal of Administration and Economics*. 40, 112.
- Slack, N., Shams, S., & Johnston, S.R. (1998). Operation Management, 2nd Ed, Pitman Publishing.
- Sower, E.V., Quarles, R., & Broussard, E. (2007). Cost of quality usage and its relationship to quality system maturity. *International Journal of Quality and Reliability Management*, 24(2), 121-140.
- Williams, A.R., & Dale, (2000). Quality Costing: A management review, *International Journal of Management Review*.