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The Impact of Six Sigma Implementation on Improving the Quality of Palestinian Banking Services

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Thesis Approval

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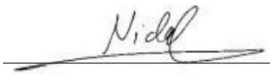
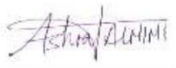
1. Dr. Nidal Dwaikat : Supervisor	
2. Dr. Ashraf Almimi: Internal Examiner	
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Declaration

I declare that the content of this thesis is my own research work, unless otherwise referenced. I certify that this thesis does not contain any material published before by another person or has been submitted elsewhere for any degree or qualification.

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Dedication

To the righteous martyrs of Palestine and to the heroic prisoners.

To the one I proudly carry his name, my dear father.

To the shelter I turn to every moment, my beloved mother.

To my dear uncle {Amjad}

To my beloved sister {Rida}, and my dear brothers {Basman, Mohammad,

Oday, Waleed}. My God protect them

To my sister's husband {Mohammad}

To my brother's wife {Monya}

To those who brought happiness into my heart to my sister's children

{Oday, Masa & Hoor}, and to my niece {Zeina}.

To all my friends.

I dedicate this modest work to you all …

Acknowledgement

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Finally, I extend my gratitude to everyone, whether near or far, who contributed to assisting me in this success of this study.

Abstract

This thesis aims to examine the effect of the Six Sigma implementation on the quality of banking service in Palestine through examining the effect of top management support and commitment, feedback and measurement, continuous improvement, availability of necessary HR, operations and system, and communication on the quality of banking service in Palestine. Besides, examining the significant differences in the studied sample responses towards the importance of six-sigma implementation with respect to managerial level, experience level, education achievement, and age. The researcher followed the quantitative research approach and the explanatory research design. The data was collected from a sample of (317) managers and employees using the questionnaire design. The data was analyzed using SPSS version 29 using both descriptive and inferential statistics Pearson correlation, multivariate regression, ANOVA, t test.

The study results demonstrated that there is a high level of agreement towards the existence of Six Sigma requirements in banking institutions in Palestine. The highest two constructs associated to six-sigma are: Continuous improvement with a mean of (3.64) and the second constitute is management support and commitment with a mean of (3.58).

There is a high level of agreement towards the perceived quality of banking services in banking institutions in Palestine. Besides, there is in general insignificant differences in the studied sample attitudes and views towards the extent of Six Sigma implementation and perceived quality of banking services attributed to personal and demographic variables.

The correlation matrix shows in general there is good level of correlation between each construct of Six Sigma implementation and quality of banking services. The highest correlation exists between continuous improvement and quality of banking services (0.668).

The value of R square is (0.568) and the adjusted R square is (0.56). This means the implementation of six-sigma in banking institutions explains almost (56%) of the change in the quality of the banking services. Furthermore, there is a positive and significant effect of feedback, continuous improvement, and communication on the quality of banking services. However, there is a positive but insignificant effect of management support and commitment, HR, and operations and systems on the quality of banking services.

The researcher suggests that banking institutions have to adopt and implement the six-sigma philosophy as an interesting way to develop and enhance the quality of banking services. Moreover, banking institutions should set aside adequate financial resources and capabilities to use Six Sigma and other interesting excellence applications to develop the quality of banking services. Moreover, banking institutions should invest in gathering the feedback of employees and the bank`s performance on a continuous basis, using both financial and nonfinancial indicators and measures to improve the quality of their performance. Besides, they should invest in the development and acquisition of information technology and the required technological instruments, as this helps the use and implementation of six-sigma in banking institutions in Palestine.

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List of Abbreviations

Abbreviation	Definition
DMAIC	Define, Measure, Analyze, Improve, and Control
HRM	Human Resource Management
SS	Six Sigma

Chapter One

Introduction

1.1 Overview

The rapid evolution of global economic development, globalization, and the development of information and communication have affected the way banking institutions offer and do their activities and operations. Besides, these developments affected the business performance of organizations and provided businesses with better opportunities to obtain a competitive advantage. Thus, given the importance of quality systems in banking institutions nowadays as an interesting instrument in the market and to enhance the financial performance of banking institutions, Six Sigma is one of the most interesting tools, especially in large businesses such as banking institutions (Samarrokhi et al., 2015).

The banking sector in Palestine consists of fourteen banking institutions that are three Islamic banks and eleven traditional banks. The largest two banks in Palestine are Arab bank and bank of Palestine. From another perspective seven of these banks are listed banks in Palestine compared to other seven banks are foreign banks most of them are Jordanian banks. The number of employees at banking institutions in Palestine is 7524 employees at the end of 2022.

Its total assets reached approximately 21.4 billion dollars, and customer deposits reached approximately 16.5 billion dollars, which helped pump more liquidity into the local economy, raising the credit facilities portfolio to approximately 11.0 billion dollars, constituting approximately 67.1% of the total deposits. Despite this expansion of the credit portfolio, the banking sector's assets still enjoy a high level of quality, with the default rate being very low, at around 4.1% of the total credit portfolio, with the

capital adequacy ratio rising to about 16.2%, exceeding the minimum limits according to regulatory instructions (Palestine Monetary Authority, 2023).

Six Sigma was introduced for the first time in the 1980s by Motorola. Then, its popularity expanded dramatically among tremendous businesses around the world. Several Fortune 500 businesses have recognized the importance of using Six Sigma to decrease defective services, increasing efficiency and effectiveness of operations, decreasing crowding of customers in banking institutions, and increasing customer satisfaction, as Six Sigma plays an essential role in decreasing variations, reducing defects, and increasing success (Garza-Reyes, 2015).

Six Sigma plays an essential role in improving the quality of services in banking institutions, increasing the financial performance and business sustainability of the enterprises. Furthermore, it helps in the investigation and elimination of defects. Moreover, identifying and treating process variations (Cherrafi et al., 2016).

According to Cherrafi et al. (2016), the six-sigma algorithm is made up of five phases that are called the DMAIC cycle (Define, Measure, Analyze, Improve, and Control). It is basically exercised as an instrument for the implementation of the six-sigma process and as an interesting instrument to achieve the objectives of the business.

The banking institutions in Palestine have adopted and implemented several initiatives to develop the quality of their services, especially the intensive investment in information technology and the innovation of several banking services and products to increase business competitiveness. There is intensive competition among the Islamic banks and commercial banks, as well as intensive competition between local banks and foreign banks. Thus, the improvement of service quality is the main key to the success of banking institutions in Palestine.

This chapter presents the statement of the study, objectives and questions, study hypotheses, definition of terms, limitations and delimitations of the study.

1.2 Statement of the Problem

The researcher found from her experience of more than a decade that there is an intensive competition among the banking institutions in Palestine to acquire a better market share and improve the financial performance. Thus, one of the most essential instruments to achieve these objectives is to implement Six Sigma in banking institutions. Likewise, the intensive competition among banking institutions due to globalization, rapid development in information and communication technology, and the expansion of foreign trade have led to the necessity of improving the quality of banking institutions and providing customers with innovative products and services. One of the most interesting approaches to enhance the quality of banking services is the implementation of Six Sigma (Noori et al., 2018; Ismyrlis et al., 2018). Thus, Six Sigma is an interesting approach to increasing the quality of banking services by increasing the efficiency of operations, decreasing costs, and providing banks with better opportunities to introduce new and innovative products and services.

There are a number of studies that explored the effect of Six Sigma on the quality of banking services, such as Gulbake and Panga (2023); Bhat et al. (2023); and Athab (2023), who found that there is a positive effect of Six Sigma implementations on the quality of services. On the other hand, there are limited studies that have investigated the effect of Six Sigma on the quality of banking services in Palestine. Furthermore, Abed AL-Shaer (2015) found that there was a statistically significant correlation between (training, organizational culture) as requirements of application six

Sigma and enhancing the quality of operations in government hospitals Palestinian. Likewise, Abu Sharikh (2019) found Six Sigma has a significant role in sharpening the employees` work and refine his character to get him prepared to embarrass daily challenges in health care system in Palestine. In a study of Kababe (2018) found that the components of Six Sigma are exiting at listed industrial firms in Palestine. Moreover, these companies use Six Sigma to decrease cost of quality. Besides, there is insignificant effect of firm size and financial performance on six sigma implementation in these firms.

The researcher investigated the banking sector due to its interesting role in economic development and its being one of the most interesting service sectors. Besides, banking institutions in Palestine confront intensive competition, and they have to improve the quality of their services to achieve business sustainability (Shafei & Tabaa, 2016). Thus, the problem of the study is to answer the following main question:

What is the effect of Six Sigma implementation on the quality of banking services in Palestine?

1.3 Objectives of the Thesis

This thesis aims to examine the effect of the six-sigma implementation on the quality of banking service in Palestine.

Based on the main aim of this thesis, this study addresses the following objectives:

1 Examining to what extent the banking institutions in Palestine implement six-sigma approach.

2 Investigating the effect of the top management support and commitment on the quality of banking service in Palestine.

3 Examining the effect of feedback and measurement on the quality of banking service in Palestine.

4 Measuring the effect of continuous improvement on the quality of banking service in Palestine.

5 Estimating the effect of the availability of necessary HR on the service quality of banking in Palestine.

6 Estimating the effect of operations and system improvement on the quality of banking service in Palestine.

7 Measuring the effect of communication on the quality of banking service in Palestine.

8 Examining the significant differences in the studied sample responses towards the importance of six-sigma implementation with respect to managerial level, experience level, education achievement, and age.

1.4 Questions of the Thesis

What is the effect of the six-sigma approach on the service quality of banking institutions in Palestine?

Based on the major question, the researcher developed the following questions:

1 To what extent are the banking institutions in Palestine implementing the six-sigma approach?

2 What is the effect of the management support and commitment on the quality of banking service in Palestine?

3 What is the effect of feedback and measurement on the quality of banking service in Palestine?

4 What is the effect of continuous improvement on the quality of banking service in Palestine?

5 What is the effect of the availability of necessary HR on the service quality of banking in Palestine?

6 What is the effect of operations and system improvement on the quality of banking service in Palestine?

7 What is the effect of communication on the quality of banking service in Palestine?

8 Are there significant differences in the studied sample responses towards the importance of six-sigma implementation with respect to managerial level, experience level, education achievement, and age?

1.5 Significance (Importance) of the Thesis

This thesis has the following importance:

1 Banking institutions in Palestine play an essential role in economic development. The researcher selected the banking institutions in Palestine because the improvement of quality is an interesting issue and a determinant of their business sustainability and development. Thus, banking institutions always work hard to experience and use innovative approaches and techniques to improve the quality of their services and products.

2 Six Sigma is one of the most applicable and interesting approaches to developing banking services and has attracted several large businesses around the world as it has a high effect on their service and product quality and enhancement.

3 The banking sector is an appropriate economic sector for exercising and implementing the six-sigma approach.

4 This thesis findings and implications play an essential role in the operational management literature. Thus, this gives the opportunity for researchers, scholars, and academics to perform further studies and research in this field in a Palestinian environment. Furthermore, this thesis provides a clear road map for banking institutions management and decision-makers to motivate them to use the Six Sigma approach to develop and enhance their quality strategies.

5 Six Sigma is an interesting approach to increasing the creativity of the human resources in banking institutions and maximizing the value for customers. Thus, this plays an essential role in enhancing customer service and loyalty. Besides, it helps management find solutions for the problems that banking institutions may expose them to.

6 According to the best knowledge of the researcher, this thesis is one of the limited studies and researches that explored this topic in banking institutions in Palestine. So that it encourages further studies and research in this field.

1.6 Hypotheses

The main hypothesis of this study is:

There is no significant statistical differences at ($\alpha \leq 0.05$) for the effect of Six Sigma implementation on the quality of banking service in Palestine.

Based on this hypothesis the researcher developed the following hypotheses:

H0-1: There is no significance statistical differences at ($\alpha \leq 0.05$) for the effect of top management support and commitment on the quality of banking service in Palestine.

H0-2: There is no significance statistical differences at ($\alpha \leq 0.05$) for the effect of feedback and measurement on the quality of banking service in Palestine.

H0-3: There is no significance statistical differences at ($\alpha \leq 0.05$) for the effect of continuous improvement on the quality of banking service in Palestine.

H0-4: There is no significance statistical differences at ($\alpha \leq 0.05$) for the effect of availability of necessary HR on the quality of banking service in Palestine.

H0-5: There is no significance statistical differences at ($\alpha \leq 0.05$) for the effect of operations and systems improvement on the quality of banking service in Palestine.

H0-6: There are no statistically significant differences at the ($\alpha \leq 0.05$) level in the studied sample regarding the effect of communication on the quality of banking service in Palestine.

H0-7: There are no statistically significant differences at the ($\alpha \leq 0.05$) level in the studied sample regarding the implementation of Six Sigma attributed to the gender of the respondent.

H0-8: There are no statistically significant differences at the ($\alpha \leq 0.05$) level in the studied sample regarding the implementation of Six Sigma attributed to the age of the respondent.

H0-9: There are no statistically significant differences at the ($\alpha \leq 0.05$) level in the studied sample regarding the implementation of Six Sigma attributed to the marital status of the respondent

H0-10: There are no statistically significant differences at the ($\alpha \leq 0.05$) level in the studied sample regarding the implementation of Six Sigma attributed to the academic achievement of the respondent.

H0-11: There are no statistically significant differences at the ($\alpha \leq 0.05$) level in the studied sample regarding the implementation of Six Sigma attributed to the position of the bank of the respondent

H0-12: There are no statistically significant differences at the ($\alpha \leq 0.05$) level in the studied sample regarding the implementation of Six Sigma attributed to the experience of the respondent.

H0-13: There are no statistically significant differences at the ($\alpha \leq 0.05$) level in the studied sample regarding the implementation of Six Sigma attributed to the nationality of the bank of the respondent.

H0-14: There are no statistically significant differences at the ($\alpha \leq 0.05$) level in the studied sample regarding the implementation of Six Sigma attributed to the nature of the bank of the respondent.

1.7 Thesis Variables

This thesis aims to examine the effect of the six-sigma approach on service quality of banking institutions in Palestine. Thus, this study has the following variables:

Dependent Variable: Quality of banking services.

Independent Variable:

1. Management support and commitment
2. Feedback and measurement.
3. Continuous improvement.

4. Availability of necessary human resources.
5. Operations and systems.
6. Communication.

1.8 Delimitations of the Study

1. Locative Limitations: This thesis is limited to one economic sector, which is the banking institutions in Palestine.
2. Temporal Limitations: This thesis performed in 2023.
3. Human Limitations: This study is limited to the middle- and top-level management at banking institutions in Palestine.
4. Topical Limitations: This study examined the effect of using Six Sigma on improving the quality of Palestinian banking services.

1.9 Thesis Structure

This thesis consists of five chapters, as follows:

Chapter One is the introductory chapter that includes a general overview of the study, statements of the problem, objectives, questions, hypotheses, and the importance of the thesis.

The second chapter is the conceptual framework, theoretical work, previous empirical studies, and comments on those studies. Eventually, identification of the value added for this thesis This chapter includes the definition and development of the six-sigma concept, the principles of six-sigma, the advantages and disadvantages of six-sigma, and the factors influencing the adoption and implementation of six-sigma. Then, the definition of banking service quality and its importance Eventually, linking Six

Sigma and banking service quality Then, the research presented several Palestinian, Arab, and foreign studies and research that explored the topic of the thesis to identify the value added for this thesis.

Chapter Three is the thesis methodology and design, which includes the thesis approach and design, population, sample, and sampling methods, identification of the thesis data collection methods that are primary and secondary data collection methods, measurement of reliability and validity, and statistical analysis methods.

Chapter Four presents the findings of the thesis through the analysis of the responses of the studied sample to the questions of the thesis. While the second section presents the findings of the thesis's hypotheses, Eventually, chapter five consists of a summary of the findings, discussion of the thesis findings, and development of practical as well as practical recommendations for the banking institution management to implement Six Sigma to enhance the quality of the banking services. Eventually, identification of thesis limitations and suggestions for further studies and research in this field.

1.10 Summary

The intense competition in the banking sector due to globalization and rapid development in information and technology (IT) has compelled banking institutions to recognize and meet customers` expectations. This puts pressure on banking institutions to concentrate on improving the quality of their services and products to achieve competitive advantage, customer satisfaction, and business sustainability by producing high-quality products at a low cost and decreasing the causes of defects and low achievement. Thus, this chapter identified the problem statement of the thesis, the

development of the objectives, questions, and significance of the thesis, as well as the major hypotheses. Eventually, the researcher specified the limitations and delimitations of this thesis.

Chapter Two

Literature Review and Hypotheses Development

2.1 Introduction

The quality of products and services has gained increasing interest and involvement in institutions due to globalization, increasing intensive competition, and the interest from businesses to differentiate their products and services to achieve competitive advantages, thereby achieving better customer satisfaction and better financial performance (Ajeel, 2021).

The beginning of quality management refers to Japan, then it has expanded to the USA, where the quality of products and services has appeared as a critical factor in achieving business sustainability and better financial performance (Al Nahdir, 2017). Several scholars and authors played an essential role in the development of quality management and developed several models and approaches to improve operations, processes, products, and services quality efficiently. One of the interesting innovations in this field is the presentation of the six-sigma approach, which has gained great interest from scholars and senior managers (Al-Abdallah and Lic, 2020).

This chapter presents the literature review and the hypothesis development. The researcher presented the definition of Six Sigma and its historical development, Moreover, the researcher discussed the major requirements for successful implementation of Six Sigma, including critical success and failure factors. Finally, the researcher developed the hypotheses of the study and set the theoretical framework of the study based on a critical, intensive revision of empirical studies that explored this topic.

2.2 The Definition of Six Sigma

Bill Smith introduced the concept of Six Sigma at Motorola in 1986. It refers to a specific category of quality management techniques (Al Harbi and Al Sidiri, 2018). Sigma (Σ, σ) basically refers to a Greek letter that is a unit in statistics, and it symbolizes the standard deviation. Thus, Six Sigma is an interesting statistical evaluation technique (Al Harbi and Al Sidiri, 2018). This method aims to reach zero defect production, avoid liability risks that are related to the delivered services and products to customers, decrease production and failure costs, increase the efficiency of business activities, increase market share, and thus the financial performance of the enterprise, and increase customer satisfaction and loyalty. The six-sigma method concentrates on improving the quality of products and services, increasing the efficiency of the process, and facilitating the introduction of innovative products and services and product lines that meet the customers` needs and requirements (Ajeel, 2021).

Laureani and Antony (2019) stated that Six Sigma is an interesting work strategy that aims to determine the causes of errors and defaults in the institutions` processes and operations and to overcome these causes by concentrating on outputs with value added for customers. Likewise, Dominic (2021) stated that Six Sigma is "a systematic approach and method implemented to enhance the strategic process and development of innovative products, services, and solutions utilizing a number of statistical tools and instruments to avoid defects. (1085)

σ" (sigma) represents the standard deviation, indicating the variability of individual data points from the mean in a dataset. It measures the spread of values rather than directly quantifying unit defects. In quality management, the concept of "Six Sigma" refers to achieving a level of performance where processes are nearly free from

defects, with a target of about 3.4 defects per million opportunities. This level of performance corresponds to a process variability of approximately six standard deviations from the mean. Therefore, when a process achieves a Six Sigma level, it indicates a high level of quality control and efficiency, with minimal variation and defects in production

Six Sigma is an interesting method to measure the quality of production, as it is also a set of scientific instruments and management approaches and methods that use improvement or design processes to improve the processes of specific enterprises. Moreover, Six Sigma is an interesting innovative method that helps the business decrease its production and operating costs while increasing its competitiveness. Thus, it plays an essential role in increasing the financial performance of the business by improving the quality of the products and services and improving the core activities of the organization (AL Nahdir, 2017).

According to Yassin (2017), Six Sigma is "a statistical instrument through which businesses can quantitatively measure performance, recognize failures and defects in procedures or goods, and work hardly to identify them on a continuous basis to decrease the percentage of errors to zero and to increase the value of the delivered products and services" (P. 27).

In another definition of Six Sigma that was presented by Ahmad (2019), it is "the ability to decrease cycle time, remove product defects, and increase customer loyalty and satisfaction" (P. 27).

Nazer (2017) stated that Six Sigma is a set of processes and strategies that gives businesses the opportunity to considerably improve their core activities, processes, and operations through the design and control of their activities, decrease waste and use of

existing resources, and at the same time meet customers` expectations and requirements efficiently.

According to Pande et al. (2014), Six Sigma is a flexible method that is used by businesses to improve performance and business leadership.

Ibrahim (2019) stated that Six Sigma is an interesting integrated management system that has a high level of accuracy to develop and enhance the efficiency of business operations and activities, providing leads with the required tools and methods to solve problems and improve the quality of business operations and activities.

Awad (2011) stated that Six Sigma is "a clear methodological strategy that includes several statistical and administrative instruments; for instance, illustrative maps are integrated to enhance the quality of products and services by well-educated and trained human resources to implement this methodology" (P. 40).

Chakraborty and Leyer (2013) defined Six Sigma as an interesting approach that focuses on customers' requirements and satisfaction to improve business activities and operations efficiently by creating high-quality products and services for customers. Likewise, Ulmer (2008) defined Six Sigma as an improvement process that concentrates on variables that lead to defects, flaws, and defaults, decreasing operating costs and the operating cycle. Furthermore, it helps the enterprise bring customers to customers within a short period of time, achieving customer satisfaction and increasing the financial performance of the business.

According to Camargo (2006), Six Sigma is an approach to improving the quality of processes, solving problems that the business encounters, decreasing costs of production and processes, and minimizing defects in all business activities and processes.

According to Yassin (2017) most businesses work between 3 and 4 Sigma. This indicates that there is a high potential for the occurrence of errors and defective units of production, as the expected number of operational errors is between 6210 and 66800. Thus, most businesses are required to implement the Six Sigma method to enhance the quality of the services and products that they deliver to customers.

Six Sigma is an interesting work strategy that aims to specify the roots of errors, identify defects that take place in commercial operations and processes and overcome such defects, errors and defaults by concentrating on customers' satisfaction (Laureani and Antony, 2019).

There are six levels of Six Sigma that are:

Table (2.1): Level of Six Sigma

Sigma level	Defects Per Million	Yield
6	3.4	99.99966%
5	230	99.977%
4	6210	99.38%
3	66800	93.32%
2	308000	69.15%
1	690000	30.85%

Reference: Laureani and Antony, 2019

Based on the above definitions of the six-sigma concept, the researcher in this thesis defines it as an approach and method that integrates organizational processes and statistical analysis to decrease variations in products and services to improve the quality of business operations and processes, resulting in better competitive advantage and better customer satisfaction and loyalty.

2.3 Brief History of Six Sigma

Motorola Inc. presented the six-sigma concept in the 1980s. The company faced a deterioration in the quality of its processes, operations, products, and services, especially when there was intensive competition between American and Japanese firms that are characterized by high-quality products and high-reliability parts, products, and services. Furthermore, Japanese firms invested huge volume of money in quality improvement and innovation. Besides, there is a high level of customer dissatisfaction and loyalty (Laureani and Antony, 2019).

Motorola noticed that it should create an approach or instrument to improve the quality of its products and services, or it will lose its market share, achieve negative financial performance, and lose its business (Yassin, 2017). The company developed an innovative approach to improve the quality of its products, named Six Sigma. Lucas (2002), who was a senior engineer at the company, presented this model. This innovative approach received the respect and recognition of the CEO of the company, Bob Galvin. The senior management decided to dedicate a large bulk of its resources to implementing the six-sigma approach, as the company invested more than $170 million in the training and development of human resources. Besides, it dedicated 35 employees to implementing this project. The company won several international quality management awards in 2000, such as the Malcolm Baldrige National Quality Award. Nowadays. Most large businesses, such as Microsoft and Toyota, use this model to improve the quality of their products and services and decrease their operation and process costs.

Thus, the company focused on customer satisfaction as the basis for improving its processes and products. Motorola focused its financial and administrative resources

to decrease variations in its operations and processes, either in administrative or manufacturing processes. Motorola launched the six-sigma concept in 1987 to measure the effect of improvement activities and procedures (Abdullah and Patrick, 2016).

The name Six Sigma refers to a statistical measure attributed to the aptitude of the process to create non-defective products and services. It is a clear measure of process variability referred to as the standard deviation, and' 'Six Sigma" usually indicates the existence of imperfections at a rate of 3.4 defects per million opportunities for defects to take place (Antony and Fergusson, 2004).

Thus, Six Sigma is an interesting method or approach to achieving business improvement through the identification of the causes of deviations and variances and the existence of default units. They set the improvement plans and procedures to eliminate these defaults and mistakes efficiently in institutions processes and procedures by concentrating on the output of processes that have value added to customers. Furthermore, this approach concentrates on improving productivity, processes, and production rates (Snee-, 2004).

2.4 Basic Six Sigma Principles

Six Sigma is based on several principles, which are as follows:

1. Focus on customers, either external customers or internal customers who are the employees of the business. Business sustainability depends to a large extent on meeting customers` expectations and needs efficiently (Abdullah and Patrick, 2016).
2. Decisions are based on realities and actual data. Businesses that have better information and data have more potential to achieve success when they evaluate their performance and the quality of services and products, they are able to deliver

to customers, as this helps to achieve the customers` expectations and achieve better financial performance (Sony et al. 2019).

3. Concentrate on internal processes: Six Sigma involves process design and implementation, enhancing the efficiency and effectiveness of business activities and processes, achieving better customer satisfaction, and increasing the value added of the delivered products and services to customers (Abdullah and Patrick, 2016).
4. Effective management: Successful management is the management that has the best potential to manage the problem before it takes place. This means setting clear objectives and controlling performance on a continuous basis. Likewise, the existence of supportive senior management affects efficiently the success of six-sigma implementation in different enterprises (Sony et al. 2019).
5. Unlimited cooperation: The existence of a high level of cooperation among senior management, employees, and customers will help the business improve the quality of its processes, products, and services (Abdullah and Patrick, 2016).
6. Continuous Improvement: The main focus of Six Sigma is to achieve continuous improvement and development, as the work is the result of several interrelated processes and activities to reach specific goals or objectives.

2.5 The Theoretical Core of the Six Sigma

The theoretical basis of the Six Sigma is what is called the DMAIC process improvement model, which is a method of enhancement and improvement that consists of five stages: defining, measuring, analyzing, improving, and controlling. All business activities and operations are performed around these stages. Each stage is supported by

efficient and strong data analysis (Sreedharan et al., 2018). Experts and senior managers use this model to decrease costs associated with defect rates, decrease variances, and improve production processes. Thus, DMAIC helps in solving the different problems that the business may encounter, enhancing the quality of processes and activities that lead to high-quality products and services, and increasing the competitiveness of the business.

Basically, the six-sigma model concentrates on improving the quality of current processes and operations. Thus, it concentrates on the identification of customers' requirements, thus increasing customer satisfaction (Zhong, 2017).

The Five Stages of DMAIC are the Following Stages:

The Definition Stage is to define the requirements of customers and the main factors influencing customer satisfaction (Sreedharan et al., 2018). Likewise, the Council for Six Sigma (2018) stated that the definition stage is involved in problem identification, the identification of the requirements of the project, and the objectives and requirements of the project. Thus, the project leader should specify in this stage the problems that the business confronts, especially the variables influencing negatively the quality of processes and operations, their associated problems, and their effect on customer satisfaction and the financial performance of the organization. Besides, identify the scope, mission, and vision of the project for six-sigma implementation (Sreedharan et al., 2018).

Measurement Stage: Measurement is the ability to use quantitative measurements to ease the use of statistical tools and methods. This stage also includes a measurement of the current performance of the business and the extent of customer satisfaction as its

starting point for six-sigma implementations (Omari, 2015). Furthermore, the measurement stage includes data and information collection, evaluation of the severity and size of the problem, and statistical measurement of defects. Thus, in this stage, the management of the six-sigma implementation specifies the current problems through the use of actual data and information obtained from the existing operations and processes (Zhong, 2017).

Analysis Stage is the utilization of several techniques of statistics to identify the causes of issues and problems that negatively influence the quality of processes and operations and decrease the costs of production and defects in the enterprise (Zhong, 2017). Likewise, Kumar et al. (2020) stated that analysis is the analysis of the core objectives and goals of a six-sigma implementation project to identify defects` causes and the wastage of existing resources and information.

Improvement Stage: The success of the management in achieving the assigned goals and objectives efficiently. Thus, the six-sigma project team should find and develop solutions to solve the causes of the problems that were specified in the analysis stage. Then these suggestions and resolutions ought to be evaluated against the associated risks and costs (Alejandrino et al., 2020).

Control stage is the ability to monitor and control any variances in the variables of the business's operations and processes that are to be enhanced and developed (Kumar et al, 2020)

The DMAIC model is not always a linear process, as on several occasions, the business may use several steps repeatedly to ensure the efficient use of Six Sigma.

2.6 Organizational Structure of Six Sigma

The quality of Six Sigma is embedded in its interest in customer satisfaction and the focus on the customer as the cornerstone for business sustainability and survival, as every process of activity starts and ends with customer satisfaction and value added to the customer. Six Sigma assumes that customers have the right to find and get high-quality products and services, high product and service reliability, reasonable and competitive prices, and punctual delivery of products and services. Thus, all of these requirements and expectations can be achieved through the efficient utilization of the six-sigma method (AL Nahdir, 2017).

The initiation of the six-sigma method needs a democratic organization culture that promotes exploring new ideas, concepts, and authorities and the existence of adequate resources, especially financial and administrative resources, to make the required decisions to implement this method efficiently, mobilizing resources, especially human resources, toward teamwork and cooperation, and selecting the team members to start this process (Omari, 2015).

The Six Sigma system has a number of levels of belts, like to what individuals would realize when training in Karate. The colors for Six Sigma are: Green, Yellow, Black, Brown, and Master Black Belt. The belt color someone holds will help to determine what role they will have in a given project, and how they will be spending their time.

Champion: The champion is the executive director of the project who is responsible for managing human resources to achieve the six-sigma project, specifying the mission and objectives of the project, selecting the human resources to accomplish this project, distributing existing resources, setting the timetable to perform this project, evaluating

the performance of individuals, and supporting and managing the required communication to set the road map for six-sigma implementations (AL Nahdir, 2017).

Master Black Belt: The black belt director or president is the person who participates as the champion in six-sigma project implementations, as he has the required competencies and skills to manage the project efficiently and is aware of the organization (Nasar, 2018). The black belt manager trains and develops the skills and competencies of employees at different levels of the organization and helps the champion evaluate the progress in six-sigma project implementations, assume leadership programs, and ease the sharing of knowledge and experience among organization members (AL Baghdadi, 2018).

Black Belt: Black Belt is the individual expert in the penetration strategy, and he specifies the key critical challenges and obstacles that confront the implementation of the project and guides, reporting on each stage to the proper leadership levels (Pakdil, 2020).

Green Belt: the employees who have a good level of training and development and who lead the improvement teams spend most of their time on six-sigma project implementations (Hindawi, 2017). However, they maintain their duties and responsibilities in the organization, and they have the ability to spend 10 to 50% of their time on their projects, depending on their main business (Nasar, 2018).

Yellow Belt: the individuals work as part-time employees in a six-sigma project, and those employees receive training in the basics of the six-sigma method. They also receive some education and training in six-sigma processes, tools, and simple techniques (Anvari and Moghimi, 2012).

Executive Leader: The executive leader performs the complete efforts of Sigma Six, and he is often the vice president. He takes the responsibility of setting the vision of the six-sigma project within the organization strategy, and he assumes the responsibilities of removing limitations and challenges and decreasing employee and management resistance to change through persuading others to respond to change. He should have good communication and leadership skills, especially transformational leadership skills and competencies (Khalaf, 2020).

2.7 The Importance of Six Sigma Method

There are several benefits to the six-sigma implementation, which include:

Improving the productivity of the organization is associated with increasing involvement and investment in training and learning. This helps in clarifying the objectives of the organization for all the employees in the organization. Thus, increasing their involvement in business activities. Besides, it decreases the defects, decreases the quality costs incurred by businesses, and increases their productivity (AL Baghdadi, 2018).

Enhancing innovation and improvement in business activities and processes is the core aim of Six Sigma, which is to achieve zero defects and errors. Besides, increasing business capabilities and decreasing errors in any process Furthermore, using statistical means reduces errors, enhances the quality of processes, and delivers products and services to customers.

Bakti (2020) noted that Six Sigma plays an essential role in improving the characteristics of products, increasing customers` satisfaction, increasing internal as well as external customers` satisfaction, and increasing involvement in employees`

training and development. Moreover, Rudyanto (2020) stated that Six Sigma has a significant effect on achieving error-free performance in businesses, increasing the efficiency of quality management and techniques. Likewise, Budiyanto (2020), cited in Kartika et al. (2020), noted that Six Sigma also decreases defects in products and services, decreasing manufacturing and administrative costs, and helping the business reach 3.4 defective per million opportunities (Noviantoro, 2020).

Another advantage of six-sigma method implementation is the transformation of the business culture from centralization to decentralization of organization structure, triggering employees' involvement and participation in decision-making (Sutia, 2020).

Tarawneh (2019) examined the effect of six-sigma implementation on the enhancement of the quality of services at the Ministry of Health in Jordan and found that six-sigma implementation increases the financial performance of the business through the removal of default units, decreasing waste in resources, and increasing productivity. Moreover, it decreases the cost of poor quality, especially costs related to errors` correction and costs of non-conformity, and decreases the cost per unit due to decreasing errors in products and services. Moreover, it increases the competitiveness of the business, achieving a better competitive advantage.

Pie-Shih (2006) argued that there is a positive effect of six-sigma implementations on business sustainability, financial performance, decreasing costs and expenses, minimizing the volume of defects and errors, and increasing customer satisfaction and loyalty. Moreover, Kim (2006) found that the implementation of Six Sigma affects positively the quality of products and services, enhancing activities and operations efficiency in libraries. Likewise, Salaheldin and Abdelwahab (2009)

demonstrated that six-sigma implementation decreases total production costs while increasing customer satisfaction.

Srinivas and Sreedharan (2018) demonstrated that six-sigma implementations have a significant effect on decreasing processes and operations costs, decreasing costs of production, eliminating defects in production, and increasing customer satisfaction and loyalty. Likewise, Augusto and Monteiro (2014) found that there is a significant effect of six-sigma implementations on increasing productivity, enhancing the quality of processes and procedures, decreasing the quality cost, and improving the financial performance of service sector firms in the United Arab Emirates.

In a study by Dey (2014), it was found that six-sigma implementation plays an essential role in enhancing customer satisfaction, achieving continuous improvement and enhancement, identifying the causes of quality problems, and increasing customer involvement in business activities and operations. Furthermore, Antunes et al. (2013) demonstrated that six-sigma implementation improves the financial performance of manufacturing firms by getting rid of waste associated with processes and placing humans in the processes` centers. Thus, Six Sigma is an interesting method to achieve continuous improvement, the removal of waste, enhanced financial performance, and more value added to customers by rational use of existing resources (Alkunsol et al., 2019).

Mezouari et al. (2013) argued that Six Sigma has three interesting advantages and objectives: removing waste, enhancing the quality of processes and operations, and rationally utilizing existing resources and competencies. Furthermore, Desale and Deodhar (2014) found that six-sigma implementation increases production flexibility by decreasing cycle times, reducing the volume of inventory, improving the potential of

benchmarking, increasing customer satisfaction and loyalty, and decreasing non-value-added activities and procedures.

Suleiman and Abdullah (2022) demonstrated that Six Sigma decreases the time of the production cycle; it helps employees perform the different activities and operations effectively and correctly from the first time, thus removing default costs. Besides, it helps to meet the customers` expectations and requirements efficiently. Thus, to achieve better customer satisfaction as well as better employees` satisfaction and loyalty, it also helps to improve financial performance through better utilization of existing resources and competencies, continuous improvement by introducing innovative products and services, and better control and measurement of the quality of the delivered products and services.

2.8 Critical Success Factors for Six Sigma

The successful implementation of Six Sigma is specified by several factors that include:

Management Support and Commitment as the leadership style in business determines to a large extent the efficiency and effectiveness of the business in the implementation of the Six Sigma method (Ben Warth and Jabah, 2016). Likewise, Sara et al. (2017) found that management support and commitment is a critical success factor in six-sigma implementation. The management should have the sense and vision to specify the institution's goals and objectives. The existence of management support and commitment create a team that is able to successfully implement Six Sigma by meeting the requirements of the organization.

Likewise, Raghunath and Jayathirtha (2013) argued that management support and commitment play an essential role in the success of six-sigma implementation, as some managers perceive it as an interesting method to increase productivity and improve the financial performance of businesses. However, others perceive it as an extra cost without any benefit. Moreover,

Lodgaard et al. (2016) stated that management support and commitment decrease resistance to change and improve creativity and innovation inside the business. Moreover, Raghunath and Jayathirtha (2013) revealed that management support and commitment play an essential role in the development of clear awareness of and understanding of the employees` recognition and awareness of Six Sigma.

Brian et al. (2017) stated that senior management at SMEs should invest in skills and knowledge development to improve the employees` awareness of Six Sigma and its successful implementation, especially increasing employees` awareness of the nature, importance, and objectives of the Six Sigma method and the high-performing levels of skills that are required. Besides, there is high potential for six-sigma implementation success when there is a high level of management support and commitment in Six Sigma practices. Moreover, they insisted that the senior management of the business should be innovative and proactive rather than reactive.

Likewise, Al Nahdir (2017) considered management support and commitment as the cornerstones for successful implementation of Six Sigma, as senior management has the ability to persuade employees of the importance of implementing Six Sigma and maintain the objectives of the business. Furthermore, the senior management provides the employees with clear directions and sets definite limits for work.

Thus, the persuasion of business management by the importance of the six-sigma philosophy is a main factor influencing business success. Besides, the following transformational leadership style leads to better implementation of Six Sigma, as under this style of leadership, employees will find a more freedom environment, increasing innovation and creativity, and increasing acceptance of change and development Rudyanto (2020)

Increasing Cooperation between senior management and subordinates is necessary as management ought to accept the employees` proposals and suggestions and provide them with the required tools for the change process and the management of new duties and tasks to create a challenging environment that helps to avoid boredom due to daily routine activities and processes (Rumane, 2018). Sreedharan (2019) argued that communication and teamwork are essential requirements for the success of six-sigma implementation.

Singh et al. (2019) stated that the success of the six-sigma implementation relies to a large extent on active communication, either vertical or horizontal. Moreover, efficient flow of information in the business has an interesting role in improving communication and teamwork.

Thus, it’s interesting to involve in planning regular meetings to provide training and to give the team members the opportunity to share experience to ensure that all the employees have good knowledge and awareness of the Six Sigma objectives, importance and its role in improving the competitiveness of the business and increasing the quality of services and products and decreasing costs of production (Garcia – AL caraz, et, 2017).

**Involvement in Employees` Training and Development** as innovative methods really establishes a type of distress for candidates as it establishes changes in the ways of doing activities and processes (Marodin and Saurin, 2015). Thus, organizations should invest in employees` training and development in innovative ways to increase employees` satisfaction, loyalty, and involvement in business activities and processes (Jeyaraman and Teo 2010). Training is very important for the success of any business, achieving business sustainability, and achieving business objectives efficiently and effectively. Human resources should be educated and trained as six-sigma experts and professionals (Raghunath and Jayathirtha, 2013).

The training and development of human resources play an essential role in easing the implementation of Six Sigma. Furthermore, a few people are aware of and recognize the six-sigma method. Thus, they consider it a problematic and complex method to implement efficiently. Likewise, Abdullah and Patrick (2016) considered employee training and development as a critical success factor for the implementation of Six Sigma in any enterprise.

According to Alzabari et al. (2019), good familiarity with statistics techniques is an essential requirement for the successful implementation of Six Sigma. Thus, training is an essential and critical success factor for Six Sigma implementations. Besides, employees should be trained on the optimal procedures to perform activities and practices with a high level of quality (Mustafa & Jamaludin, 2017). In this regard, Talab et al. (2017) demonstrated that practical training ought to be integrated with traditional training and development, as this helps to implement the new knowledge and awareness in six-sigma implementations.

Brook and Brook (2010) demonstrated that training and education are also important critical success factors for the implementation of Six Sigma, as it is interesting to train and educate employees about the concept of Six Sigma and its tools and methods. Thus, the senior management of the institution should arrange continuous training and development sessions and programs for six-sigma implementation to avoid the failure of its implementation.

Transformation in the Corporate Culture of the organization is necessary for the success of any innovative management technique. A change in the corporate culture plays an essential role in easing the change process (Lodgaard et al., 2016). Besides, adaptability to change and development. Likewise, Brian et al. (2017) stated that change is inevitable and organizations should be educated to make changes and developments to remain afloat. Otherwise, they may miss significance throughout constant transformation".

Henceforth, the aptitude for workforces to become familiar with alteration and not feel endangered by Six Sigma is interesting to its successful implementation (AL Baghdadi, 2018).

Porter (2019) found that organization culture plays an essential role in the success of six-sigma implementation. However, the existence of hierarchical organizational structures negatively affects the implementation of Six Sigma. Another interesting factor is the existence of adequate and well-trained human resources. Besides, there must be alignment with the institution`s goals and objectives.

Laureani & Antony (2018) found that the existence of a supportive organizational culture and work environment has a significant effect, as the existence of a transformational leadership style encourages employees` participation and

involvement in decision-making. Thus, it increases employees` acceptance of change and development, and it supports continuous improvement and enhancement. Furthermore, Laureani and Antony (2018) argued that the success of six-sigma implementation requires an adequate understanding and recognition of current performance, obtaining data and information related to the inputs of the organizations` processes and operations, and focusing on the outputs.

2.9 Barriers of Six Sigma Implementation

There are several limitations that confront the implementation of Six Sigma, which are:

1. **The Nonexistence of Adequate Financing** as a six-sigma implementation requires a large volume of resources, such as financial resources, human resources, and time to implement (Raghunath and Jayathirtha, 2013). According to Jeyaraman and Teo (2010), the implementation of Six Sigma requires investments in developing resources, training human resources, purchasing static software, taking consultant advice, and creating an efficient motivation and reward system to facilitate the implementation of Six Sigma in businesses.
2. **Lack of Management Support and Commitment:** according to Eirin et al. (2016), one of the critical failure factors for the implementation of Six Sigma is a lack of management support and commitment of in Six Sigma practices, as a lack of visible and efficient support from management lead to the failure of Six Sigma experience in the organization. Moreover, Jeyaraman and Teo (2010) found a lack of constant management support and commitment negatively affects the successful implementation of Six Sigma.

3. **Resistance to Change**: One of the severe problems and challenges that hinder the implementation of Six Sigma is employees' resistance to change. In this regard, Raghunath and Jayathirtha (2013) found that skepticism and resistance of employees are common factors influencing negatively the successful implementation of Six Sigma in businesses, as Six Sigma is based on the notion of identifying the gap between the current practices and processes and the optimal quality of processes and activities. Richard (2019) found that a lack of employee and management awareness of the six-sigma implementation and its benefits led to an increase in employees` resistance to change. Thus, increasing employees` knowledge and experience of six-sigma implementation and proper understanding of this method decreases the employees` resistance to six-sigma implementation, increasing their acceptance of change and development.

   Kumar and Kaushish (2014) argued that the successful implementation of Six Sigma requires creating a change management plan to encourage employees to accept change. Moreover, Richard (2019) stated that resistance to change is a critical failure factor that affects the implementation of the six-sigma approach, as it refers to the undesired and unwillingness of employees to accept innovative and new ideas, and innovations vary from the classical methods and approaches to enhance efficiency and decrease waste that continuously take place in business work.

4. **Organizational Culture of the Business:** Abdullah and Patrick (2016) found that the corporate culture of the business is an impediment to the implementation of the Six Sigma philosophy, as the existence of a supportive culture for development and innovation supports the implementation of Six Sigma, increasing cooperation among employees and managers, and increasing management support and

commitment for change and development (Antony et al. 2019). Thus, the existence of a supportive organizational culture encourages human resources involvement, increasing innovation and creativity in the business, problem-solving processes, increasing decentralization, and improving continuous improvement and productivity (Pakdil and Leonard, 2015).

5. **Lack of Training:** Inadequate involvement and investment in employees` training and development affect negatively the successful implementation of the six-sigma method. Kumar and Kaushish (2014) found that the selection and training of unqualified and trained employees increase the challenges of six-sigma implementation. Likewise, Raghunath and Jayathirtha (2013) argued that poor training and development of human resources is a main barrier that enterprises confront when they implement the six-sigma method, as there is a direct association between poor training and development and poor understanding and interpretations of six-sigma.

Shreedharan et al. (2018) noted that the critical failure factors of six-sigma implementation in financial institutions are inadequate awareness of statistical tools and the difficulty of the choice of six-sigma tools. Moreover, Psychogios et al. (2012) found that resistance to change, poor organization culture that involves and interest in inspiration of high quality, poor selection of operations and processes, poor organization culture, existence of centralization in decision making, lack of employees' participation in decision making, and lack of senior management support and commitment for quality enhancement and improvement

In a qualitative study that was performed by Antony et al. (2016) to identify the critical failure factors of Six Sigma in service institutions in the United Kingdom. The

study findings demonstrated that the main critical failure factors are poor communication, poor involvement in creative and innovative thinking, and a lack of motivation and reward for employees. Likewise, Albliwi et al. (2014) conducted a systematic analysis study to identify the critical failure factors of six-sigma implementation. The findings of the study confirmed that these factors include inadequate employees` training and development, a lack of required financial and administrative resources, and poor communication.

Tsironis and Psychogios (2016) found that the major failure factors of six-sigma implementation are poor understanding and awareness of the six-sigma concept, its importance, and resistance to change. Likewise, McLean et al. (2017) performed a systematic analysis study of seventy-two articles that explored the critical failure factors of six-sigma implementation that deter continuous improvement operations and initiatives. The study classified these variables into eight categories, especially lack of management support and commitment, lack of adequate resources, poor communication, lack of cooperation, resistance to change from employees, and lack of training and development of human resources.

Shreedharan et al. (2018) performed a systematic analysis of the critical failure factor of six-sigma implementation. The study confirmed that the major critical failure factors are lack of management support and commitment, lack of training and development, and the nonexistence of adequate resources.

2.10 Previous Studies

Alfatlawi and Alsaedi (2023) examined the effect of Six Sigma on the enhancing the quality of banking services in Islamic banks in Iraq. They used top

management support and commitment, feedback and measurement, continuous improvement, process and systems, Human resources to measure the extent of six sigma implementation in banking institutions. The researchers followed the quantitative and correlation design using questionnaire design. The data was collected from a sample of (39). The study found that there is a significant effect of Six Sigma on the quality of banking services in Islamic banks in Iraq. Besides, there is a significant correlation between Six sigma implementation and the quality of banking service. The researchers recommended banks have to utilize financial analysis as an interesting control method to detect errors and deviations, developing and strengthening security procedures to protect customer accounts and personal information by providing additional verification techniques such as identification.

Zirmi and Saidani (2022) examined the impact of six sigma implementation on the performance of commercial banks in Algeria. They used the DMAIC model. They used both the descriptive and analytical method. The study found there is a positive and significant effect for each construct of the Six Sigma approach on financial performance of the investigated banks. Furthermore, the study results confirmed that there is high willingness of senior management support and commitment of implementation of Six Sigma at their banks. Thus, the main implication of this study that the banking institutions management should increase the awareness of the significance of Six Sigma implementation at banking institutions to improve their financial performance and increase the efficiency of banking service quality.

Bara (2021) who examined the role of lean Six Sigma implementation on improving the bank account opening process at Palestinian Islamic Bank. The researcher used “the DMAIC Methodology (Define, Measure, Analyze, Improve and

Control), and the root causes for the extra-long time required to open a new bank account". The findings confirmed that the implementation of lean Six Sigma has decreased the average required time of this process by 61.4% that is from an average of 38 minutes to less than 14.7 minutes. Thus, it has decreased waiting time of customers through removing some unrequired steps and procedures. The researcher suggested that the bank ought to continue implementing improvement actions to increase the quality of banking services and increasing customer satisfaction through focusing on both internal and external communication, more senior management involvement in human resources training and development and performing continuous monitoring and evaluation for the different processes and procedures in the bank.

Aditya and Irawan (2020) explored the effect of Six Sigma approach implementation on the quality of services at Bank Bni Syariah Bandung and increasing customer satisfaction. The study findings confirmed that the application of Six Sigma approach decreases the customers' complaints, increasing customers` satisfaction and loyalty. Furthermore, the bank has the potential and the adequate resource to implement service quality.

Kasu, et, al, (2019) examined the effect of Six Sigma implementation on improving the performance of commercial banks in Algeria as this study is interested to examine the extent of Six Sigma implementation at banking institutions and to examine the effect of this approach on the performance of banking institutions. The study results confirmed that commercial banks have high willingness to implement Six Sigma approach. The researchers suggested that commercial banks have to implement Six Sigma to enhance their performance and competitiveness and it helps them to achieve

the requirements of customers and improve the quality of offered services to customers and acquisition the required skills and competencies for the employees.

Sunder et al. (2019) also examined the role of lean Six Sigma in consumer banking as there is a few studies that have explored this topic previously. The findings demonstrated that lean Six Sigma has significant role in improving the quality of banking services and increasing customers' satisfaction. Furthermore, the study confirmed that there is high possibility for implementation of Six Sigma at banking institution especially in improving the quality of retail services. Besides, application of Six Sigma improves systematic thinking perspectives in banking institutions. Thus, it could be used as an interesting strategic planning and evaluation technique to achieve business sustainability and growth. The study also revealed that senior management support and commitment and continuous employees training and development are the most interesting factors influencing the application of Six Sigma in banking institutions.

Zhuo (2019) found that Six Sigma is an interesting approach to improve the quality, enhancing the existence of high-quality preventive control system, enhancing the cooperation between senior management and employees, achieving continuous improvement and development, and increasing the efficiency and effectiveness of the management. Based on the study findings the researcher suggested that banking institutions have to implement a flexible working arrangements and improve the extent of feeling with leisure in the halls of banking institutions and increase the windows of delivering banking services at peak times, improving E. banking services. Besides, they have to invest in improving service efficiency and effectiveness through continuous optimization of banking services and shorten service time.

In a study performed by Khalil (2018) to explore to what extent the Six Sigma can be used to evaluate and improve business performance at private banks in Najaf from the attitude and perception of senior managements. Besides, to examine the availability of critical success factor for implementation Six Sigma either administrative, technical, financial, and human factors. The findings of the study demonstrated that the private banks in Najaf have the required administrative, financial and technical requirements to implement Six Sigma. Furthermore, the senior managers considered achieving customer satisfaction is one of the most interesting priorities of their interest and the management has high readiness and support to improve e Six Sigma technique at their banks. Furthermore, the study confirmed that there is positive and significant effect for Six Sigma implementations on improving business performance and achieving business sustainability and continuity.

Al-Nathar (2017) explored the extent of Six Sigma implementation in food manufacturing firms in Palestine. The study results confirmed that the major determinants of Six Sigma implementation are senior management support and commitment, continuous improvement, training and development of human resources, the existence of an efficient information system, and measurement instruments. However, the main limitation and challenge of the Six Sigma application is employees` resistance to changes. Thus, the main implication of this study is the necessity to invest in employees` training and development.

Deniz et al. (2017) explored the attitude and perception of health and service managers and administrators` perception and attitude toward using Six Sigma approach in their institutions as this approach has the ability to decrease defects and variations in service and banking services and products. The study results demonstrated that there are

insignificant differences between the banking and health care sector managers and administrators` perception toward using Six Sigma. Besides, the findings confirmed that there is significant effect for application of Six Sigma on customer satisfaction and enhancing the quality of health and banking services in Turkey.

Nayeri and Rostami (2016) found that improving customer satisfaction is the most interesting driver for using the Six Sigma approach. Moreover, the study findings confirmed that there is positive and significant effect for Six Sigma utilization on the four aspects of the balanced scorecard. Moreover, the findings confirmed that Six Sigma acts an essential role in solving problems, improvement process and enhance customers` loyalty and increase competitiveness of the business.

Abu Loum (2015) found that there is high level of commercial banks` compliance with implementation of Six Sigma. Besides, the findings confirmed that there is positive and significant effect for the implementation of Six Sigma on controlling the quality of internal auditing in commercial banks in Jordan. The implication of this study that commercial banks have to strengthen the concept of Six Sigma and to seek its application in other sectors such as education, health and other sectors due to its importance.

Al-Zwaylif and Taher (2020) revealed that Six Sigma approach has significant effect on the competitive advantage. Furthermore, there is significant effect for each criterion of the Six Sigma on achieving the competitive advantage in industrial firms in Jordan. Moreover, the study confirmed that there was moderate level of Six Sigma implementation in industrial firms in Jordan. This study has several implications for industrial firms` managers at Jordan to achieve better competitive advantage by

implementation of quality management techniques with special focus on implementation of Six Sigma technique. Similarly, Al-Tarawneh (2019) who examined the effect of Six Sigma implementation in enhancing the quality of health services in Ministry of Health in Jordan. Demonstrated that there is significant effect for Six Sigma implementations on health services at ministry of Health in Jordan. The main implications of this study that the ministry of Health has to implement Six Sigma approach in its activities and the senior management in the ministry has to provide everything required to implement this approach to enhance the quality of health services provided by the ministry. Eventually, the senior management at the Ministry of Health in Jordan should invest in human capital development and it's necessary to conduct further studies and research in this context.

Abu Nahya (2012) explored the effect of the Six Sigma approach on the quality of internal audits at Palestinian universities in the Gaza Strip. The study results confirmed that the critical success factors of Six Sigma implementation are management support and commitment, continuous improvement, HR training and development, the existence of an efficient reward and motivation system, and the existence of adequate resources.

2.11 The Contribution of this Study

This study has several contributions for the existing studies in this field:

1. Literature is rich with similar studies that were mainly conducted in developed and developing countries. However, limited studies that have explored the effect of Six Sigma on the quality of banking services in banking institution in Palestine in specific and developing countries in general.

2. The previous studies have focused on a direct implementation of Six Sigma approach to specify defects and correct them. Thus, this helps to improve the service quality. Conversely, this study focuses on exploring the effect of Six Sigma on each dimension of service quality in banking institution in Palestine.
3. The previous studies were performed in various economic sectors either in private or public sector. However, there is a few studies that have explored the effect of Six Sigma on enhancement of service quality in banking institutions in Palestine.
4. The current study followed the quantitative, cross sectional, descriptive and survey design in contrast to several previous studies that adopted the qualitative or the quantitative research approach. Thus, this helps the researcher the potential to obtain data from large sample size of managers.

2.12 Framework of the Study (Research Model)

This study examined the effect of six-sigma implementation on the quality of banking services in Palestine. This diagram presents the variables of the study.

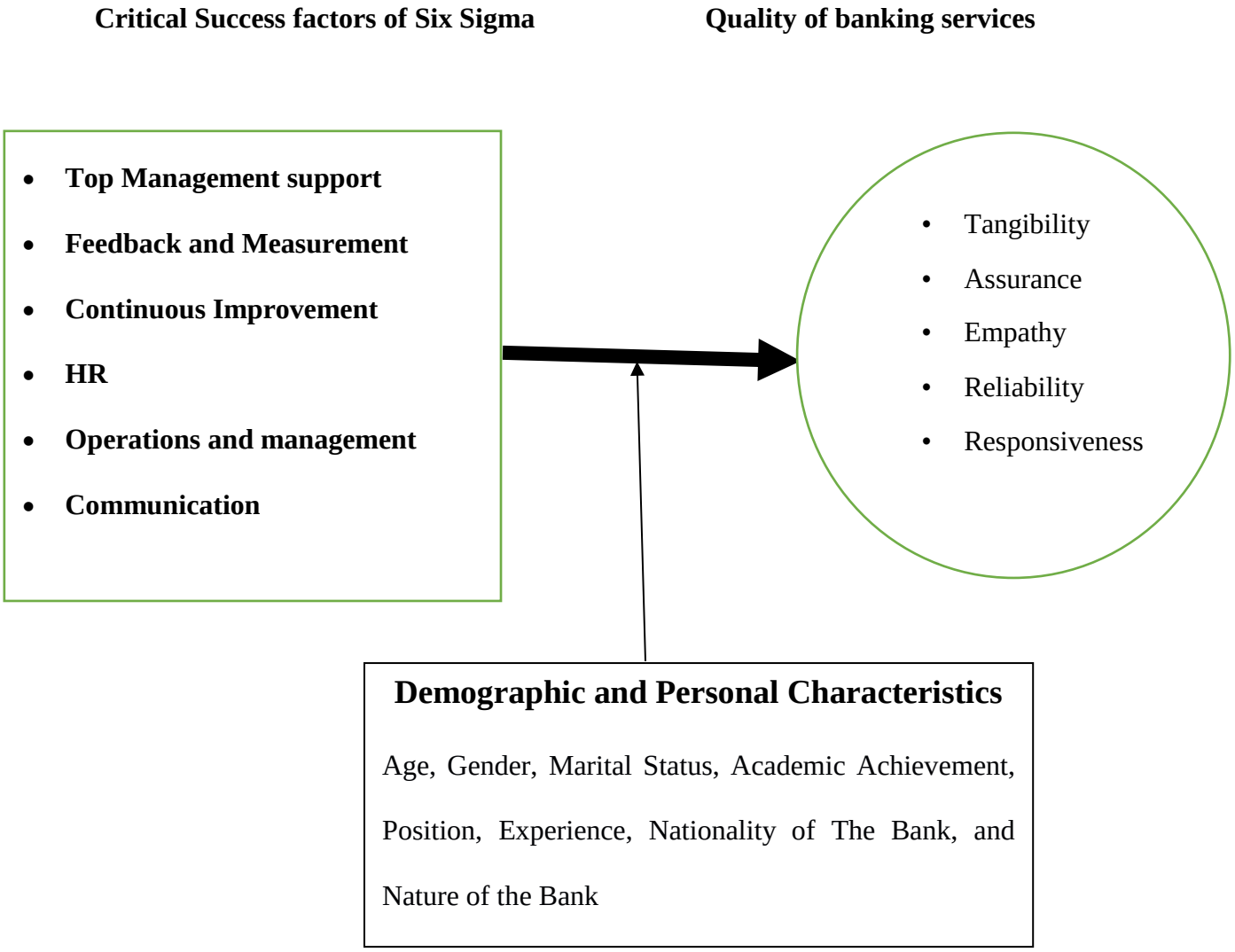

Figure (2.1): Model of the Study

Based on Figure (2.1) the study model prepared by the researcher based on the following references: - Independent variable (Sigma six): (Melhem, 2014), (Ahmed, 2017), (Naimi and Sweiss, 2008), (Tawfik, 2008) (Omari, 6311(- The dependent variable (quality of services): (Taie et al., 2009).

2.13 Hypotheses Development and their Motivations

Based on the model of the study, the researcher developed the following hypotheses.

H1: There is a Significant and Positive Effect for top management Support and Commitment on the Quality of Banking Services.

The Motivation for H1: The existence of management support and commitment as an essential requirement of success any business in implementation of Six Sigma approach efficiently as Jeyaraman and Teo (2010) claimed that continuous senior management support and commitment increases the energy and enthusiasm of the business to success in Six Sigma implementation. Lodgaard et al. (2016) stated that management support and commitment of quality decrease resistance to change and improve creativity and innovation inside the business. Moreover, Raghunath and Jayathirtha (2013) revealed that management support and commitment play an essential role in the development of clear awareness of and understanding of the employees` recognition and awareness of Six Sigma. Likewise, Sreedharan (2019) argued that communication and teamwork are essential requirements for the success of six-sigma implementation

The top management or senior management refers to the highest management level in the banking institutions in Palestine who involve in strategic planning, guidance and controlling and monitoring the performance of the banking institutions and the follow up the progress in achievement the strategic plans of the bank.

Management support and commitment of quality enhancement is a critical success factor in Six Sigma implementation. The management should have the sense and vision to specify the institution's goals and objectives. The existence of management support and commitment create a team that is able to successfully implement Six Sigma by meeting the requirements of the organization.

H2: There is a Significant and Positive Effect for Feedback and Measurement on the Quality of Banking Services.

The Motivation for H2: Feedback and measurement are the set of tools and instruments used by banking institutions in Palestine to evaluate the bank`s performance by obtaining data and information on performance and output of the bank and its achievement, specify problems and failures and set corrective actions and plan to remedy these problems and improve the performance of the bank and reach zero errors.

According to Payne et al (2018) the competency of human resources is a critical factor influencing the quality of banking services, professional employees, and polite behavior with customers, and efficient communication skills have a positive effect on the quality of banking services. Furthermore, Parcha (2022) found proficient employees who have high experience, knowledge, and qualification have more potential to service customers with high quality service. Besides, they have more potential to achieve better job satisfaction.

H3: There is a Significant and Positive Effect for Continuous Improvement on the Quality of Banking Services.

The Motivation for H3: It is expected to find a positive effect of continuous improvement on the quality of banking services as it is an efforts exercised by the management and employees in banking institutions to improve the procedures, methods progressively. Besides, continuous improvement acts an essential role on daily strict schedules as continuous improvement and enhancement enhance customer satisfaction, flexibility and quality to increase the competitiveness of banking services. Besides, continuous development helps to decreasing waste, specification of problems in business operations and processes, and focusing on customer satisfaction. Likewise,

measurement is interesting to improve business performance and to specify the efficiency and effectiveness of the business resources and business performance. Moreover, organizations should evaluate and assess their external and internal environment to identify opportunities and challenges to achieve competitive advantage.

The six-sigma project team should find and develop solutions to solve the causes of the problems that were specified in the analysis stage. then these suggestions and resolutions ought to be evaluated against the associated risks and costs (Alejandrino et al., 2020).

There are several studies found a positive effect of continuous improvement on quality of banking services as Abu Nahya (2012); Adrian (2016); Al-Nathar (2017); Altorkhana (2016); Antunes et al. (2013); Dey (2014); Laureani & Antony (2018); Pakdil and Leonard (2015); Suleiman and Abdullah (2022); Tsironis and Psychogios (2016); Yazan (2018); and Zhuo (2019) found a positive effect of continuous improvement on the quality of banking services in Palestine.

H4: There is a Significant and Positive Effect for Employees' Proficiency on the Quality of Banking Services.

The Motivation for H4: Training and development means the activities and process that desire to provide the human resources with the adequate knowledge, experience and recognition of Six Sigma approach implementation through the training of essential skills related to its implementation successfully. The proper efforts of training and development increases the potential for success in implementation of six-sigma as it was proved by several scholars and researchers. Training and development as innovative methods really establishes a type of distress for candidates as it establishes changes in the ways of doing activities and processes (Marodin and Saurin, 2015).

According to Alzabari et al. (2019), good familiarity with statistics techniques is an essential requirement for the successful implementation of Six Sigma; thus, training is an essential and critical success factor for Six Sigma implementations. Besides, employees should be trained on the optimal procedures to perform activities and practices with a high level of quality (Mustafa & Jamaludin, 2017). In this regard, Talab et al. (2017) demonstrated that practical training ought to be integrated with traditional training and development, as this helps to implement the new knowledge and awareness in six-sigma implementations.

H5: There is a Significant and Positive Effect for Operations and Management on the Quality of Banking Services.

The Motivation for H5: It is expected to find a positive effect of operations and management on the quality of banking services as it helps to specify the roots of errors, defects take place in commercial operations and processes and overcome such defects, errors and defaults by concentrating on customers` satisfaction. Besides, financial and administrative resources to decrease variations in its operations and processes, either in administrative or manufacturing processes improve the organization activities and procedures. Furthermore, investment in operations and management decreases processes and operations costs, decreasing costs of production, eliminating defects in production, and increasing customer satisfaction and loyalty: removing waste, enhancing the quality of processes and operations, and rationally utilizing existing resources and competencies, decreasing the cycle time if the production process.

There are a number of studied have documented a positive correlation between operations and management on the quality of banking services (Al-Abdallah and Lic, 2020; Abdullah and Patrick,2016; Altorkhana, 2016; Al Nahdir, 2017; Chakraborty and

Leyer, 2013; Garza-Reyes, 2015; Ibrahim, 2019; Ismyrlis et al., 2018; Laureani and Antony, 2019; Mezouari et al., 2013; Nazer, 2017; Noori et al., 2018; Srinivas and Sreedharan; Thakur et al., 2019).

H6: There is a Significant and Positive Effect for Communication on the Quality of Banking Services.

Efficient communication in organization has an efficient effect on the quality of banking services as this helps to specify the organization or the project mission and objectives of the project, distributing existing resources, setting the timetable to perform this project, evaluating the performance of individuals, and supporting and managing the required communication to set the road map for six-sigma implementations. Moreover, removing limitations and challenges and decreasing employee and management resistance. The success of the six-sigma implementation relies to a large extent on active communication, either vertical or horizontal. Moreover, efficient flow of information in the business has an interesting role in improving communication and teamwork. This argument is in line with (Akbulut Yazan, 2018; Albliwi et al., 2014; AL Nahdir, 2017; Antony et al., 2016; Khalaf, 2020; McLean et al., 2017; Singh et al. 2019; Sinha, et al., 2020; Sreedharan, 2019).

Chapter Three

Research Methodology

3.1 Introduction

The study methodology refers to a set of activities that the research follows to perform a specific research or study, as it's a mixture of activities, methods, and strategies that confirm the success of the research to answer the study questions and achieve its objectives (Pandey & Pandey, 2021). This chapter presents the research methodology by presenting and explaining the research approach, research design, research philosophy, data collection methods, population, sample, and sampling methods, validity and reliability, and the statistical methods used to answer the thesis questions, examine the hypotheses, and achieve the specified objectives of the thesis.

3.2 Research Approach

According to Abdul Wahid et al. (2019) research approach is "an appropriate research of a particular phenomenon or problem performed utilizing scientific methods and procedures". The selection of a specific research approach is basically determined according to the research objectives, questions, and hypotheses to reach the required findings (Creswell, 2017).

There are two basic research approaches to performing any research: the quantitative and qualitative research approaches, and it's recommended to use a combination of quantitative and qualitative research approaches when performing specific research, which is called the mixed research approach (Jackson, 1994).

The researcher in this thesis used the quantitative research approach to examine the specified hypotheses that the researcher set forth in the first chapter (Creswell,

2017). Thus, the quantitative research approach is "based on setting a set of hypotheses concerning the elements of a thesis, obtaining data and information, and then statistically analyzing the results to reject or accept the formulating hypotheses" (El-Gohary et al., 2008, P. 27).

The quantitative research approach is interesting for answering what, where, and when questions (Rajaskar et al., 2013). In this study, the researcher is interested in examining the effect of six-sigma implementation on the quality of banking services in Palestine. Besides, the researcher used the deductive research approach to investigate specific known theories to develop proper hypotheses on their basis, and then examine those hypotheses to decide whether to accept or reject those (Conard et al., 2014). This research approach concentrates on the number and statistics in analyzing and obtaining the data of the study.

This study found that the most of the previous empirical studies and research have used the quantitative research approach to examine the effect of Six Sigma on the quality of service in several industries, such as those by Antony and Laureani (2012) and Sharma and Chetiya (2012).

This study is an explanatory research design as it aims to examine the effect of Six Sigma implementation on the quality of banking services. This type of study is interesting to identify the causes for a definite phenomenon.

3.3 Research Population

A population refers to the entire pool from which a sample is taken, from which the data are obtained, and from which specific findings and conclusions are drawn based on them (Roxy et al., 2008). The study population in this thesis is both the middle and

senior executive managers at banking institutions in Palestine, as there are thirteen banks in Palestine, of which seven are local Palestinian banks, of which three are Islamic banks: Arab Islamic Bank, Palestine Islamic Bank, and AL-Safa Bank, whereas there are four commercial banks: The National Bank, Palestine Investment Banks, Bank of Palestine, and Al-Quds Bank. There are also six foreign banks: Arab Bank, Jordan Bank, The Housing Bank, Cairo Amman Bank, Al-Ahli Bank, and Egyptian Arab Land Bank (Association of Banks in Palestine, 2023).

The number of employees at banking institutions in Palestine as at the end of 2022 was 7524, of whom (82) that is (1%) are top-level managers; (1180) that is (16%), are middle-level managers; (5504) that is (73%), are employees; and (758) that is (10%), are administrative workers (Association of Banks in Palestine, 2023).

The second population of this thesis is made up of customers who have an active bank account at banking institutions in Palestine. The number of saving accounts in banking institutions is 2656499; 1505301 are current accounts; 75409 are term accounts; and 418079 are other accounts (Association of Banks in Palestine, 2023).

3.4 Sample

The term sample size refers to a subset of units that have specific characteristics selected from the entire population. The sample should be representative of the features of the population to give the researcher the opportunity to generalize the findings of the research (Roxy et al., 2008).

There are basically two types of data collection methods: the probability sampling selection method and the nonprobability sampling selection method. In the probability sampling selection method, each element of the population has an equal

opportunity to be selected in the sample. However, in the non-probability sampling selection method, not every unit in the sample has an equal opportunity to be selected. Thus, it is impractical to generalize the findings of the thesis when the researcher uses the nonprobability sampling selection method (Saunders et al., 2012).

This study used the convenient sampling, which means that the managers who are easiest to reach were selected to participate in answering the questionnaire for the thesis. Likewise, Bryman and Bell (2007) stated that this sampling selection method is the easiest and cheapest method to use to select the elements of the sample and to provide interesting data. However, the convenient sampling selection method has the least reliable design since it has limitations in generalizing the findings of the thesis and a lack of ability to confirm precision (Blumberg et al., 2008).

This study used the sample size calculator to find the appropriate sample as it the most common method of deciding the most appropriate sample size. According to the size of banking institutions, the size of the population is (1262) middle and top-level managers, and the confidence level is 95% and the confidence interval is five. Thus, the sample size is 295 managers.

Table (3.1): Distribution of The Studied Sample Based on Demographic Characteristics

Variable	**Choices**	**Frequencies**	**Percentage**
Age	Less than 30	123	38.8
	30-39 years	116	36.6
	40-50 years	58	18.3
	More than 50	20	6.3
	Total	317	100.0

Variable	Choices	Frequencies	Percentage
Gender	Male	157	49.5
	Female	160	50.5
	Total	317	100.0
Marital Status	Married	137	43.2
	Single	152	47.9
	Divorced	18	5.7
	Widow	10	3.2
	Total	317	100.0
Academic Achievement	Secondary School	1	.3
	Diploma	29	9.1
	Bachelor	210	66.2
	Master	64	20.2
	PhD	13	4.1
	Total	317	100.0
Position	Manager	55	17.4
	Assistant Manager	42	13.2
	Head department	67	21.1
	Employee	153	48.3
	Total	317	100.0
Experience	Less than 5 years	73	23.0
	5-10 years	97	30.6
	More than 10 Years	147	46.4
	Total	317	100.0
Nationality of The Bank	Local Bank	177	55.8
	Foreign Bank	140	44.2
	Total	317	100.0
Nature of The Bank	Islamic Bank	117	36.9
	Convenient Bank	200	63.1
	Total	317	100.0

Table (3.1) shows the distribution of the studied sample based on the demographic questions in terms of age, gender, marital status, academic achievement, position, experience, nationality of the bank, and nature of the bank. According to age it has four categories; the first category is less than 30 years with a percentage of (38.8%), the second category is the range between 30-39 with a percentage of (36.6%), the third

category is 40 -50 years is (18.3%), whereas the least category is the range of more than 50 years is (6.3%) that is the minority. According to gender, the first category is the males that has a percentage of 49.5% compared to 50.5% that are females.

According to marital status feature, it has four categories that are married, single, divorced, and widow. The highest percentage of the studied sample are single (47.9), the second category is married with a percentage of (43.2%), the third rank is divorced that has a ratio of (5.7), the minority are widow employees with a percentage of (3.2%).

The other interesting variable is academic achievement that has five categories that are secondary school, diploma, bachelor, master, and PhD. The highest category is bachelor with a percentage of (66.2), the second category is master that has a percentage of (20.2%), the other category is Diploma with a percentage of (9.1%), then, PhD that has a percentage of (4.1), the least category is secondary school that has a percentage of (0.30) that is the minority.

According to position, it has four categories that are managers, assistant managers, head department, and employee. The fourth category that is the employees represents the majority of the sample with a percentage of (48.3%), the other category is head department is (21.1%). Then, managers with a percentage of (17.4%), the least category is the assistant managers (13.2%). The majority of the studied sample have more than 10 years of experience that is (46.4%), whereas, 30.6% they have 5 – 10 years of experience, and 23% they have less than five years of experience. According to nationality of the bank it was divided into (55.8%) they work at local banks and 44.2% they work at foreign banks. Eventually, according to the nature of the bank, 36.9% they work at Islamic banks (36.9%). In comparison, (63.1%) they work at convenient banks.

3.5 Data Collection Method

There are basically two sources of data collection: the secondary data that the researcher obtained from previous studies to write the literature review, conceptual framework, and questionnaire of the study, and the secondary data to compare the findings of the current research to show the similarities and differences among those studies and the current study. The researcher obtained the secondary data from books, articles, publications, theses, and journals that explored the topic of the current thesis.

The primary data was collected through a questionnaire design to examine the effect of Six Sigma on the quality of banking services in Palestine from the views of the banking institutions managers and customers.

3.6 Survey Questionnaire

The study used the questionnaire design to obtain the primary data, which includes several prewritten statements that are given to the investigated sample to show their responses with specific preferences (Sekaran and Bougie, 2010). It is the most commonly used instrument for obtaining data from large sample sizes due to its simplicity and rapidity in obtaining information and data (Saunders et al., 2009). Besides, it requires less effort and time. Furthermore, it is used when the variables of the study are clearly specified. The questionnaire is an appropriate to obtain data when the questions are appropriately prepared and in a clear order to obtain the large amount of information (Ragab & Arisha, 2018). The questionnaire is also used to describe the characteristics of the population or investigating a set of hypotheses. There are two types of questionnaires that are descriptive questionnaire that is used to count the percentage of characteristics at a specific population without interesting to obtain

explanation. However, the explanatory questionnaire is interesting to obtain more in depth analytical information and data to examine the relationship between a set of variables. Thus, the researcher has to determine the variables of the study before obtaining and analyzing data.

The questionnaire consists of three main sections as follows:

The first section is related to demographic characteristics and it consists of (8) statements that are age, gender, marital status, academic achievement, position, experience, nationality of the bank, and nature of the bank.

The second section consists of six dimensions that are: management support and commitment, feedback, continuous improvement, HR, operations and systems, and communication.

The third section is to measure the perceived quality of banking services using servqual model that consists of five dimension that are tangibility, reliability, responsiveness, assurance, and empathy.

The questionnaire followed a Likert scale of five degrees: strongly agree (5), agree (4), neither agree nor disagree (3), disagree (2), and strongly disagree.

The researcher distributed the questionnaire through several techniques either manually or online using Google drive technique. Then, the researcher called the top management of banking institutions to ensure the fill out of the questionnaire that the researcher sent to them.

The researcher adopted the following scale () to evaluate the degree of the agreement.

Table (3.2) Agreement Descriptor

Mean Likert-type Value	*Agreement descriptor*
1-1.80	Very Low
1.81 -2.60	Low
2.61 -3.40	Moderate
3.412-4.20	High
4.21-5	Very high

3.7 Survey Questionnaire Validity

The validity concept refers to the degree to which an instrument is able to measure what is expected and intended to be measured in a study (Sekaran, 2006).

This study used several techniques to estimate and check the validity of the questionnaire through a pilot study by distributing the questionnaire to a sample of (50) managers in banking institutions to examine to what extent they were able to comprehend the statements of the questionnaire and the clarity of the statements of the questionnaire. Then, the researcher presented the questionnaire to a set of experts who are different arbitrators in the area of the study. Then, modifications are performed to ensure the efficiency of the questionnaire in achieving the objectives of the thesis and answering its questions. Also, the research found the Pearson correlation between each statement and the mean of the statement on the scale to determine to what extent there is a positive correlation between them, as the existence of a high correlation indicates that there is high validity among the statements of the questionnaire.

The Criterion Related Validity

Table (3.3) Correlation Coefficient of Management Support and Commitment

	Statement	Pearson Correlation	P-Value (Sig.)
1.	The bank's management has the financial capabilities to use quality and excellence applications	.841**	0.00
2.	The bank's management has the readiness and enthusiasm to use the principles of quality and excellence	.860**	0.00
3.	The bank's management is willing to use contemporary methods in the field of quality and excellence	.865**	0.00
4.	The bank's management is ready to provide facilities and time to use quality and excellence applications	.860**	0.00
5.	The bank's management strengthens its competitive position among banks through its focus on providing high-quality banking services	.803**	0.00
6.	The bank allocates part of its resources to developing quality through the use of the best methodologies such as Six Sigma	.787**	0.00
7.	The bank's mission focuses on developing the quality system	.794**	0.00
8.	The bank's management encourages and adopts creative ideas	.791**	0.00
9.	The management seeks to increase competition among employees by announcing the rewards granted to distinguished people in the bank	.635**	0.00
10.	The bank's management grants collective bonuses to the bank's distinguished employees	.615**	0.00

Table (3.3) shows the Pearson correlation between each statements of the management support and commitment and the mean of all the dimensions. The table

shows that all the statements have high level of Cronbach alpha with the mean of all the statements of the dimension.

Table (3.4): Correlation Coefficient of Feedback

	Statement	Pearson Correlation	P-Value (Sig.)
1.	The bank's management measures the performance of all work centers in the bank	.824**	0.00
2.	The bank's management relies on financial indicators to measure and monitor the results of adopting performance evaluation in accordance with established standards.	.838**	0.00
3.	The bank's management relies on non-financial indicators to measure and monitor the results of adopting performance evaluation in accordance with established standards.	.839**	0.00
4.	The bank's management relies on multiple methods to obtain the information necessary to plan its effectiveness with regard to providing banking services	.865**	0.00
5.	The measurement methods adopted by the bank contribute to improving overall performance	.851**	0.00
6.	The bank prepares detailed reports on the activities it provides periodically	.793**	0.00
7.	The bank is keen to know the opinion of its customers about the services provided	.707**	0.00
8.	The bank has a qualified staff to know and study everything related to feedback	.651**	0.00
9.	There are programs that help the administration evaluate the unit’s performance on an ongoing basis	.772**	0.00
10.	The goals of the organizational unit are compatible with the environment in which it exists	.754**	0.00

Table (3.4) shows the Pearson correlation between each statements of the feedback and the mean of all the dimensions. The table shows that all the statements have high level of Cronbach alpha with the mean of all the statements of the dimension.

Table (3.5) Correlation Coefficient of Continuous Improvement

	Statement	**Pearson Correlation**	**P-Value (Sig.)**
1.	Applying the principles of quality and excellence in the bank helps improve the quality of banking services provided to customers	.830**	0
2.	The bank's management is keen to provide competitive banking services and products in the banking sector	.848**	0
3.	The bank's management is keen to train and develop human resources on an ongoing basis	.892**	0
4.	The bank's management is keen to involve all employees in making decisions related to improving the quality of banking services on an ongoing basis	.847**	0
5.	The bank's management is keen to prepare quality reports and correct any deviations or errors on an ongoing basis	.806**	0
6.	The bank's management is keen to prepare studies to survey customers' opinions about the quality of banking services provided by the bank	.851**	0

Table (3.5) shows the Pearson correlation between each statements of the continuous improvement and the mean of all the dimensions. The table shows that all the statements have high level of Cronbach alpha with the mean of all the statements of the dimension.

Table (3.6): Correlation Coefficient of HR

	Statement	Pearson Correlation	P-Value (Sig.)
1.	The bank's management is prepared to link senior management's rewards to the success of implementing quality and excellence principles	.840**	0
2.	The bank's management is willing to link promotions in the bank to quality and excellence programs	.860**	0
3.	The bank's management is willing to motivate employees to use quality and excellence applications	.850**	0
4.	The bank's management is willing to appoint experts and consultants for quality and excellence applications	.849**	0
5.	The bank has a sufficient annual budget allocated for training	.829**	0
6.	The bank has an annual plan to identify training needs	.837**	0
7.	Training programs aim to prevent errors in order to provide the highest level of service	.775**	0
8.	The training programs aim to prepare specialized cadres to compete with the cadres of other banks	.722**	0

Table (3.6) shows the Pearson correlation between each statements of the HR and the mean of all the dimensions. The table shows that all the statements have high level of Cronbach alpha with the mean of all the statements of the dimension.

Table (3.7): Correlation Coefficient of Operations and Systems

	Statement	Pearson Correlation	P-Value (Sig.)
1.	The bank's management is prepared to provide a system for exchanging and auditing information between quality and excellence applications	.878**	0
2.	The bank's management is willing to use programs to help choose and differentiate between quality and excellence programs	.896**	0
3.	The bank's management is prepared to provide a direct communication system with quality and excellence trainers	.897**	0
4.	The bank management has methods to analyze the activities necessary to provide the service	.891**	0
5.	The bank adopts a program to simplify procedures and reduce the number of steps required to provide the service	.882**	0
6.	The bank has advanced evaluation methods that enable it to judge the strength of the borrower's financial position	.867**	0
7.	The bank uses databases and administrative information to facilitate customer service	.885**	0
8.	The bank management provides all the supplies and tools necessary for the employee to accomplish his duties	.848**	0

Table (3.7) shows the Pearson correlation between each statements of the operations and systems and the mean of all the dimensions. The table shows that all the statements have high level of Cronbach alpha with the mean of all the statements of the dimension.

Table (3.8): Correlation Coefficient of Communication

	Statement	Pearson Correlation	P-Value (Sig.)
1.	The bank's management adopts an open-door policy with employees	.751**	0
2.	The employee can reach decision-makers at the bank to explain their positions without difficulty	.732**	0
3.	The bank's general instructions are clear and precise	.819**	0
4.	There are effective means of direct communication between employees and customers	.803**	0
5.	The management at the bank continuously seeks to overcome obstacles and complications in customer service using multiple communication channels.	.836**	0
6.	The bank has a clear and defined organizational structure	.820**	0
7.	The administrative decision in the bank is characterized by flexibility at different administrative levels	.831**	0

Table (3.8) shows the Pearson correlation between each statements of the communication and the mean of all the dimensions. The table shows that all the statements have high level of Cronbach alpha with the mean of all the statements of the dimension.

Table (3.9): Correlation Coefficient of Tangibility

	Statement	Pearson Correlation	P-Value (Sig.)
1.	The bank you work for offers many distinguished banking services	.890**	0

	Statement	Pearson Correlation	P-Value (Sig.)
2.	The overall appearance of the bank you work at is considered attractive	.917**	0
3.	The bank's work centers are close to all customers	.906**	0
4.	The bank provides distinguished electronic services to customers	.915**	0
5.	Bank employees have a neat and good appearance	.839**	0

Table (3.9) shows the Pearson correlation between each statements of the tangibility and the mean of all the dimensions. The table shows that all the statements have high level of Cronbach alpha with the mean of all the statements of the dimension.

Table (3.10): Correlation Coefficient of Reliability

	Statement	Pearson Correlation	P-Value (Sig.)
1.	When the management of the bank you work for promises to do something at a specific time, it is committed to doing so	.835**	0
2.	The bank is keen to follow up and address problems and complaints submitted by customers	.850**	0
3.	The staff is keen to provide the right service to customers the first time	.827**	0
4.	The bank maintains accurate records of transactions relating to customers	.866**	0
5.	The electronic services provided by the bank facilitate customers' access to various banking services	.800**	0

Table (3.10) shows the Pearson correlation between each statements of the reliability and the mean of all the dimensions. The table shows that all the statements have high level of Cronbach alpha with the mean of all the statements of the dimension.

Table (3.11): Correlation Coefficient of Responsiveness

	Statement	**Pearson Correlation**	**P-Value (Sig.)**
1.	The bank's management is keen to provide justice and complete equality among all customers without discrimination	.777**	0
2.	The bank's management is keen to solve the problems facing customers without delay	.866**	0
3.	The employees are keen to provide services to customers quickly and accurately	.900**	0
4.	Employees are present at their workplaces at the appropriate time	.809**	0
5.	The bank's employees are fully prepared to assist customers and provide services to them	.874**	0
6.	Meeting customers' requests quickly contributes to the bank's competitive advantage	.784**	0
7.	The bank's management follows up the desires and needs of customers on an ongoing basis	.807**	0

Table (3.11) shows the Pearson correlation between each statements of the responsiveness and the mean of all the dimensions. The table shows that all the statements have high level of Cronbach alpha with the mean of all the statements of the dimension.

Table (3.12) Correlation Coefficient of Assurance

	Statement	Pearson Correlation	P-Value (Sig.)
1.	Customers feel safe in their dealings with the bank	.854**	0
2.	The employees at the bank are trustworthy	.920**	0
3.	The bank provides its customers with means to facilitate their dealings with the bank	.854**	0
4.	The bank informs customers of developments occurring in banking operations within the bank	.895**	0
5.	Employees maintain the confidentiality and privacy of customer data	.871**	0

Table (3.12) shows the Pearson correlation between each statements of the assurance and the mean of all the dimensions. The table shows that all the statements have high level of Cronbach alpha with the mean of all the statements of the dimension.

Table (3.13) Correlation Coefficient of Empathy

	Statement	Pearson Correlation	P-Value (Sig.)
1.	Staff have the ability to treat customers with personal attention	.821**	0
2.	The bank's management is keen to sympathize with customers when problems occur	.825**	0
3.	There is no place in the bank where I work for mediocrity and favoritism in dealing with customer issues	.698**	0
4.	The bank provides working hours appropriate to customers' circumstances	.883**	0
5.	The bank puts the interests of customers at the forefront of its concerns	.856**	0

	Statement	Pearson Correlation	P-Value (Sig.)
6.	Bank employees know customers' needs and strive to fulfill them	.820**	0
7.	The bank grants loans and credit facilities to customers with appropriate interest and commissions compared to other banks	.758**	0

Table (3.13) shows the Pearson correlation between each statements of the empathy and the mean of all the dimensions. The table shows that all the statements have high level of Cronbach alpha with the mean of all the statements of the dimension.

3.8 Questionnaire Reliability

Reliability refers to the extent to which a questionnaire creates similar findings when it`s repeated in another setting or by other scholars and researchers in similar situations. The researchers can utilize several tools and techniques to estimate questionnaire reliability, such as equivalent forms, test-retest reliability, and internal consistency of the questionnaire, by using Cronbach's alpha.

According to Sekaran (2006), Cronbach alpha is "a reliability coefficient that shows how well the items of each scale are positively related to one another" (P. 25). Whereas Hair et al. (2010) argued that the questionnaire has high reliability when the value of the Cronbach alpha is greater than 0.70. Whereas, a general accepted rule is that α of 0.6-0.7 indicates an acceptable level of reliability, and 0.8 or greater a very good level. However, values higher than 0.95 are not necessarily good, since they might be an indication of redundancy (Hulin, Netemeyer, and Cudeck, 2001).

According to Wilson (2014) there are three categories of reliability that are excellent reliability when the value of Cronbach alpha is greater than (0.90); high

consistency when Cronbach alpha is (0.7 -0.9). The other category is moderate reliability that is (0.5-0.7) and the least one is low reliability or consistency when Cronbach alpha is less than 0.50. The value of Cronbach alpha is (0.982). Thus, the questionnaire has an excellent level of reliability.

Table (3.14): Cronbach Alpha

	Cronbach's Alpha	**N of Items**
Management support and commitment	.926	10
Feedback	.932	10
continuous improvement	.920	6
HR	.930	8
Operations and systems	.958	8
Communication.	.903	7
Six Sigma	**.976**	**49**
Tangibility	.937	5
Reliability	.891	5
Responsiveness	.924	7
Assurance	.926	5
Empathy	.906	7
Service quality	.966	29
All the statements	**.982**	**78**

3.9 Data Analysis Approach

The research analyzed the obtained data and information taken from the online questionnaire responses statistically using SPSS version 25. The researcher used both descriptive and inferential statistical analyses to obtain the findings of the study.

The researcher exported the responses of the investigated sample from Google Drive to an Excel format file. Then, the researcher transformed that data into SPSS format. Then, she run an error check to examine if there are any missing values in the sheet. Then, she used several techniques to analyze the data to answer the specified questions and objectives in the first chapter and to test the validity of the hypotheses.

- Frequencies: using frequencies and percentages, create a profile of the investigated sample's demographic characteristics. Besides, it shows the percentage of agreement with each statement.
- Kolmogorov- Smirnov Test to examine the normality of the studied sample responses.
- One-way ANOVA: to examine the statistical differences among respondents according to their demographic variables that have more than two values.
- T test to examine the statistical differences among respondents according to their demographic variables, which has two values.
- Pearson correlation was used to examine the correlation between each pair of dependent and independent variables in the study and to examine the validity of each statement in the questionnaire. Besides, to examine if there is a multicollinearity issue among the independent variables of the thesis,

- Multivariate regression analysis is used to estimate the effect of the independent variables, which are the Six Sigma constructs, on the dependent variable, which is the quality of banking services.
- Cronbach's alpha technique was used to estimate the internal consistency of the studied sample responses.

3.10 Research Methodology Framework

The framework of the research methodology shows the sequence of activities that the researcher follows to achieve the research objectives, answer the specified objectives, and test the hypotheses of the research. The researcher selected the topic of the effect of Six Sigma on the quality of banking services from the views of managers of banking institutions as well as the views of banking customers who have active bank accounts, as the quality of banking services is the key to banking sustainability and improving financial performance, and Six Sigma is one of the most significant approaches to improving the quality of banking services.

Then, the researcher identified the scope and objectives of the thesis. Then, the researcher performed a critical intensive revision for the secondary sources of the topic through intensive revision for books, articles, publications, and theses that have been written about the topic of the thesis. Based on that, the researcher developed two questionnaires to obtain the primary data.

After that, the researcher specified the population of the thesis, which is the banking institution managers and banking institution customers who have an active bank account. The researcher measured the reliability and validity of the instrument, performed a pilot study, and presented the questionnaire to some experts to judge its

validity. In the next step, the researcher distributed the questionnaire to the sample of the study to obtain the primary data needed to examine the effect of Six Sigma on the quality of banking services in Palestine.

The researcher obtained the responses of the investigated sample through an online survey design. Then, she analyzed them statistically by using SPSS version 25 to answer the thesis questions and test the hypotheses of the thesis. Eventually, the researcher summarized the findings of the research, conduct discussion on the thesis findings, and develop some recommendations and implications based on the findings.

3.11 Ethical Considerations

Both senior and middle managers of banking institutions were guaranteed confidentiality regarding their identities. Furthermore, participation in filling out the questionnaire is voluntary. Besides, the purpose of the thesis is academic only. Moreover, the researcher respected the opinions and attitudes of the investigated sample and present them as they were answered. The researcher also dealt with the data anonymously.

3.12 Summary

This chapter presents the research methodology and approaches, which are specified and explained clearly to ensure the data collection and the questionnaire are adequately selected and ready to perform the required analysis to achieve the objectives, answer the thesis questions, and test the hypotheses of the research. The researcher used questionnaires to obtain data from middle- and senior-level managers at banking institutions in Palestine and from banking customers to examine the effect of six-sigma

implementation on the quality of banking services. The researcher used an online survey design to obtain the data for the study after ensuring its validity and reliability. Eventually, the researcher used SPSS version 25 to analyze the obtained data by using several descriptive and inferential techniques.

Chapter Four

Data Analysis and Results

4.1 Overview

This chapter presents the data analysis of the quantitative data the researcher obtained from the investigated sample. It starts with presenting the demographic profile of the respondents, then, testing the hypotheses of the study using Pearson correlation and multivariate regression analysis. Furthermore, examining if there are differences in the studied sample responses attitudes toward the implementation of Six Sigma and quality of banking services attributed to personal and demographic characteristics of the investigated sample.

4.2 Descriptive Analysis

4.2.1 Level of Sigma Implementation

What is the Level of Six Sigma Implementation in Banking Institutions in Palestine?

The researcher used descriptive analysis to answer this question using means, standard deviation, and percentages. The mean shows the central tendency of the studied sample responses about the statements of the questionnaire. Whereas, standard deviation shows the dispersion of the responses of the studied sample about the mean. The higher standard deviation value shows that the answers of the studied sample are diverse from the mean value of their responses.

The researcher used means, standard deviation, percentages and extent of agreement of each dimension of Six Sigma construct.

Table (4.1): Means, STD, Percentage, and Level of Agreement for Six Sigma Constructs

	Dimension	Rank	N	Mean	STD	Percentage	Level of agreement
1.	Management support and commitment	2	317	3.58	1.06	71.6%	High
2.	Feedback	4	317	3.49	1.06	69.8%	High
3.	Continuous improvement	1	317	3.64	1.09	72.7%	High
4.	HR	5	317	3.44	1.07	68.7%	High
5.	Operations and systems	3	317	3.56	1.05	71.1%	High
6.	Communication.	6	317	3.33	1.16	66.6%	Moderate
Mean			317	3.51	1.08	0.70	High

Table (4.1) shows the mean of the Six Sigma constructs is (3.51) and the range of the mean is (3.33-3.64). This presents that there is a high level of agreement towards the existence of Six Sigma requirements in banking institutions in Palestine. This means there is a positive attitude toward management support and commitment as the mean of the Six Sigma constructs is greater than (3.00).

The highest two constructs associated to six-sigma are:

Continuous improvement with a mean of (3.64) and STD (1.09).

Management support and committment with a mean of (3.58) and STD (1.06).

First Construct: Management Support and Commitment

The researcher used means, STD, percentage, and level of agreement for each statement of management support and commitment.

Table (4.2): Means, STD, Percentage, and Level of Agreement for Management Support and Commitment

	Dimension	Rank	N	Mean	STD	Percentage	Level of agreement
1.	The bank's management has the financial capabilities to use quality and excellence applications	2	317	3.84	0.98	76.8%	High
2.	The bank's management has the readiness and enthusiasm to use the principles of quality and excellence	3	317	3.82	0.98	76.5%	High
3.	The bank's management is willing to use contemporary methods in the field of quality and excellence	4	317	3.79	1.00	75.8%	High
4.	The bank's management is ready to provide facilities and time to use quality and excellence applications	5	317	3.79	0.98	75.8%	High
5.	The bank's management strengthens its competitive position among banks through its focus on providing high-quality banking services	1	317	3.87	1.03	77.4%	High

	Dimension	Rank	N	Mean	STD	Percentage	Level of agreement
6.	The bank allocates part of its resources to developing quality through the use of the best methodologies such as Six Sigma	7	317	3.42	1.03	68.5%	High
7.	The bank's mission focuses on developing the quality system	6	317	3.75	1.00	75.1%	High
8.	The bank's management encourages and adopts creative ideas	8	317	3.55	1.13	71.0%	High
9.	The management seeks to increase competition among employees by announcing the rewards granted to distinguished people in the bank	9	317	3.00	1.23	60.1%	Moderate
10.	The bank's management grants collective bonuses to the bank's distinguished employees	10	317	2.93	1.25	58.6%	Moderate
Mean of the construct			317	3.58	1.06	71.6%	High

Table (4.2) shows the mean of the first construct of the Six Sigma that is the management support and commitment is (3.58) and the range of the mean is (2.93-3.87). This presents that there is a high level of agreement towards the existence of management support and commitment towards Six Sigma implementation. This means

there is a positive attitude toward management support and commitment as the mean of the construct is greater than (3.00).

The highest two statements associated to management support and committment are:

The bank's management strengthens its competitive position among banks through its focus on providing high-quality banking services with a mean of (3.87) and STD (1.03).

The bank's management has the financial capabilities to use quality and excellence applications with a mean of (3.84) and STD (0.98).

Second Construct: Feedback

The researcher used means, STD, percentage, and level of agreement for each statement of feedback construct.

Table (4.3): Means, STD, Percentage, and Level of Agreement for Feedback

	Dimension	**Rank**	**N**	**Mean**	**STD**	**Percentage**	**Level of agreement**
1.	The bank's management measures the performance of all work centers in the bank	8	317	3.49	1.06	69.8%	High
2.	The bank's management relies on financial indicators to measure and monitor the results of adopting performance evaluation in accordance with established standards.	5	317	3.53	1.05	70.5%	High

	Dimension	Rank	N	Mean	STD	Percentage	Level of agreement
3.	The bank's management relies on non-financial indicators to measure and monitor the results of adopting performance evaluation in accordance with established standards.	9	317	3.42	1.04	68.3%	High
4.	The bank's management relies on multiple methods to obtain the information necessary to plan its effectiveness with regard to providing banking services	4	317	3.54	1.00	70.8%	High
5.	The measurement methods adopted by the bank contribute to improving overall performance	2	317	3.65	1.00	72.9%	High
6.	The bank prepares detailed reports on the activities it provides periodically	6	317	3.52	1.13	70.4%	High
7.	The bank is keen to know the opinion of its customers about the services provided	1	317	3.89	1.00	77.7%	High
8.	The bank has a qualified staff to know and study everything related to feedback	10	317	2.84	1.17	56.7%	Moderate

	Dimension	Rank	N	Mean	STD	Percentage	Level of agreement
9.	There are programs that help the administration evaluate the unit's performance on an ongoing basis	7	317	3.48	1.08	69.5%	High
10.	The goals of the organizational unit are compatible with the environment in which it exists	3	317	3.58	1.05	71.5%	High
Mean of the construct			317	3.49	1.06	69.8%	High

Table (4.3) shows the mean of the second construct of the Six Sigma that is feedback is (3.49) and the range of the mean is (2.84 -3.89). This presents that there is a high level of agreement towards the existence of feedback. This means there is a positive attitude toward feedback as the mean of the construct is greater than (3.00).

The highest two statements associated to are:

The bank is keen to know the opinion of its customers about the services provided with a mean of (3.89) and STD is (1.0).

The measurement methods adopted by the bank contribute to improving overall performance with a mean of (3.65) and STD is (1.0).

Third Construct: Continuous Improvement

The researcher used means, STD, percentage, and level of agreement for each statement of Continuous improvement.

Table (4.4): Means, STD, Percentage, and Level of Agreement for Continuous Improvement

	Dimension	Rank	N	Mean	STD	Percentage	Level of agreement
1.	Applying the principles of quality and excellence in the bank helps improve the quality of banking services provided to customers	1	317	3.86	1.02	77.2%	High
2.	The bank's management is keen to provide competitive banking services and products in the banking sector	2	317	3.86	1.03	77.2%	High
3.	The bank's management is keen to train and develop human resources on an ongoing basis	3	317	3.67	1.11	73.4%	High
4.	The bank's management is keen to involve all employees in making decisions related to improving the quality of banking services on an ongoing basis	5	317	3.41	1.15	68.1%	High
5.	The bank's management is keen to prepare quality reports and correct any deviations or errors on an ongoing basis	6	317	3.39	1.16	67.8%	Moderate
6.	The bank's management is keen to prepare studies to survey customers' opinions about the quality of banking services provided by the bank	4	317	3.63	1.06	72.7%	High
Mean of the construct			317	3.64	1.09	72.7%	High

Table (4.4) shows the mean of the third construct of the Six Sigma that is the continuous improvement is (3.64) and the range of the mean is (3.39 – 3.86). This presents that there is a high level of agreement towards the existence of continuous improvement. This means there is a positive attitude toward as the mean of the construct of continuous improvement is greater than (3.00).

The highest two statements associated to are:

Applying the principles of quality and excellence in the bank helps improve the quality of banking services provided to customers with a mean of (3.86) and STD (1.02).

The bank's management is keen to provide competitive banking services and products in the banking sector with a mean of (3.86) and STD (1.03).

Fourth Construct: HR

The researcher used means, STD, percentage, and level of agreement for each statement of HR.

Table (4.5): Means, STD, Percentage, and Level of Agreement for HR Construct.

	Dimension	**Rank**	**N**	**Mean**	**STD**	**Percentage**	**Level of agreement**
1.	The bank's management is prepared to link senior management's rewards to the success of implementing quality and excellence principles	7	317	3.12	1.16	62.4%	Moderate

	Dimension	Rank	N	Mean	STD	Percentage	Level of agreement
2.	The bank's management is willing to link promotions in the bank to quality and excellence programs	8	317	3.08	1.19	61.6%	Moderate
3.	The bank's management is willing to motivate employees to use quality and excellence applications	6	317	3.15	1.16	63.1%	Moderate
4.	The bank's management is willing to appoint experts and consultants for quality and excellence applications	5	317	3.26	1.10	65.2%	Moderate
5.	The bank has a sufficient annual budget allocated for training	4	317	3.64	0.97	72.9%	High
6.	The bank has an annual plan to identify training needs	3	317	3.72	0.97	74.3%	High
7.	Training programs aim to prevent errors in order to provide the highest level of service	2	317	3.75	0.98	75.1%	High

	Dimension	Rank	N	Mean	STD	Percentage	Level of agreement
8.	The training programs aim to prepare specialized cadres to compete with the cadres of other banks	1	317	3.76	1.01	75.2%	High
Mean of the construct			317	3.44	1.07	68.7%	High

Table (4.5) shows the mean of the fourth construct of the Six Sigma that is the HR is (3.44) and the range of the mean is (3.08 – 3.76). this presents that there is a high level of agreement towards the existence of adequate HR. This means there is a positive attitude toward HR as the mean of the construct is greater than (3.00).

The highest two statements associated to are:

The training programs aim to prepare specialized cadres to compete with the cadres of other banks with a mean of (3.76) and STD (1.01).

Training programs aim to prevent errors in order to provide the highest level of service with a mean of (3.75) and STD (0.98).

Fifth Construct: Operations and Systems

The researcher used means, STD, percentage, and level of agreement for each statement of operations and systems.

Table (4.6): Means, STD, Percentage, and Level of Agreement for Operations and Systems.

	Dimension	Rank	N	Mean	STD	Percentage	Level of agreement
1.	The bank's management is prepared to provide a system for exchanging and auditing information between quality and excellence applications	4	317	3.50	1.03	70.0%	High
2.	The bank's management is willing to use programs to help choose and differentiate between quality and excellence programs	6	317	3.49	1.03	69.8%	High
3.	The bank's management is prepared to provide a direct communication system with quality and excellence trainers	8	317	3.45	1.02	69.0%	High
4.	The bank management has methods to analyze the activities necessary to provide the service	5	317	3.50	1.02	70.0%	High

	Dimension	Rank	N	Mean	STD	Percentage	Level of agreement
5.	The bank adopts a program to simplify procedures and reduce the number of steps required to provide the service	7	317	3.47	1.11	69.4%	High
6.	The bank has advanced evaluation methods that enable it to judge the strength of the borrower's financial position	3	317	3.59	1.10	71.7%	High
7.	The bank uses databases and administrative information to facilitate customer service	2	317	3.71	1.03	74.3%	High
8.	The bank management provides all the supplies and tools necessary for the employee to accomplish his duties	1	317	3.73	1.04	74.6%	High
Mean of the construct			317	3.56	1.05	71.1%	High

Table (4.6) shows the mean of the fifth construct of the Six Sigma that is the operations and systems is (3.56) and the range of the mean is (3.45-3.73). This presents that there is a high level of agreement towards the existence of operations and systems. This means there is a positive attitude toward as the mean of the construct is greater than (3.00).

The highest two statements associated to are:

The bank management provides all the supplies and tools necessary for the employee to accomplish his duties with a mean of (3.73) and STD (1.04).

The bank uses databases and administrative information to facilitate customer service with a mean of (3.71) and STD (1.03).

Sixth Construct: Communication

The researcher used means, STD, percentage, and level of agreement for each statement of communication.

Table (4.7): Means, STD, Percentage, and Level of Agreement for Communication.

	Dimension	**Rank**	**N**	**Mean**	**STD**	**Percentage**	**Level of agreement**
1.	The bank's management adopts an open-door policy with employees	6	317	2.73	1.24	54.6%	Moderate
2.	The employee can reach decision-makers at the bank to explain their positions without difficulty	7	317	2.70	1.26	53.9%	Moderate
3.	The bank's general instructions are clear and precise	4	317	3.58	1.08	71.7%	High
4.	There are effective means of direct communication between employees and customers	2	317	3.69	1.04	73.8%	High

	Dimension	Rank	N	Mean	STD	Percentage	Level of agreement
5.	The management at the bank continuously seeks to overcome obstacles and complications in customer service using multiple communication channels.	3	317	3.65	1.06	73.1%	High
6.	The bank has a clear and defined organizational structure	1	317	3.71	1.16	74.3%	High
7.	The administrative decision in the bank is characterized by flexibility at different administrative levels	5	317	3.24	1.24	64.8%	Moderate
Mean of the construct			317	3.33	1.16	66.6%	Moderate

Table (4.7) shows the mean of the sixth construct of the Six Sigma that is the communication is (2.70- 3.71) and the range of the mean is (3.33). This presents that there is a moderate level of agreement towards the existence of communication. This means there is a positive attitude toward as the mean of the construct is greater than (3.00).

The highest two statements associated to are:

The bank has a clear and defined organizational structure with a mean of (3.71) and STD (1.16).

There are effective means of direct communication between employees and customers with a mean of (3.69) and STD (1.04).

4.2.2 Level of Service Quality

What is the Level of Perceived Service Quality in Banking Institutions in Palestine?

The researcher used means, standard division, percentages and extent of agreement of each dimension of service quality.

Table (4.8): Means, STD, Percentage, and Level of Agreement for Perceived Service Quality Constructs

	Dimension	Rank	N	Mean	STD	Percentage	Level of agreement
1.	Tangibility	3	317	3.87	0.94	77.5%	High
2.	Reliability	4	317	3.79	0.95	75.8%	High
3.	Responsiveness	5	317	3.75	0.97	75.0%	High
4.	Assurance	1	317	4.05	0.84	81.1%	High
5.	Empathy	2	317	3.91	0.90	78.2%	High
Mean			317	3.87	0.92	77.52%	High

Table (4.8) shows the mean of the perceived service quality constructs is (3.87) and the range of the mean is (3.75-4.05). This presents that there is a high level of agreement towards the perceived quality of banking services in banking institutions in Palestine. This means there is a positive attitude toward management support and commitment as the mean of the Six Sigma constructs is greater than (3.00).

The highest two constructs associated to perceive service quality are:

Perceived assurance of banking service quality with a mean of (4.05) and STD (0.84).

Perceived empathy of banking service quality with a mean of (3.91) and STD (0.90).

First Construct: Tangibility

The researcher used means, STD, percentage, and level of agreement for each statement of tangibility

Table (4.9): Means, STD, Percentage, and Level of Agreement for Tangibility

	Dimension	Rank	N	Mean	STD	Percentage	Level of agreement
1.	The bank you work for offers many distinguished banking services	4	317	3.84	0.98	76.8%	High
2.	The overall appearance of the bank you work at is considered attractive	5	317	3.81	0.97	76.2%	High
3.	The bank's work centers are close to all customers	3	317	3.89	0.92	77.9%	High
4.	The bank provides distinguished electronic services to customers	2	317	3.89	0.92	77.8%	High
5.	Bank employees have a neat and good appearance	1	317	3.94	0.93	78.8%	High
Mean of the construct			317	3.87	0.94	77.5%	High

Table (4.9) shows the mean of the first construct of the perceived service quality of banking institutions that is the tangibility is (3.87) and the range of the mean is (3.81-3.94). This presents that there is a high level of agreement towards the existence of tangibility. This means there is a positive attitude toward as the mean of the construct is greater than (3.00).

The highest two statements associated to are:

Bank employees have a neat and good appearance with a mean of (3.94) and STD (0.93).

The bank provides distinguished electronic services to customers with a mean of (3.89) and STD (0.92).

Second Construct: Reliability

The researcher used means, STD, percentage, and level of agreement for each statement of Reliability

Table (4.10): Means, STD, Percentage, and Level of Agreement for Reliability

	Dimension	Rank	N	Mean	STD	Percentage	Level of agreement
1.	When the management of the bank you work for promises to do something at a specific time, it is committed to doing so	5	317	3.56	1.03	71.2%	High
2.	The bank is keen to follow up and address problems and complaints submitted by customers	3	317	3.89	0.91	77.7%	High
3.	The staff is keen to provide the right service to customers the first time	4	317	3.62	0.99	72.3%	High
4.	The bank maintains accurate records of transactions relating to customers	2	317	3.90	0.93	78.0%	High
5.	The electronic services provided by the bank facilitate customers' access to various banking services	1	317	3.99	0.91	79.7%	High
Mean of the construct			317	3.79	0.95	75.8%	High

Table (4.10) shows the mean of the second construct of the perceived service quality of banking institutions that is reliability is (3.79) and the range of the mean is (3.56-3.99). This presents that there is a high level of agreement towards the perceived reliability of banking services. This means there is a positive attitude toward as the mean of the construct is greater than (3.00).

The highest two statements associated to reliability are:

The electronic services provided by the bank facilitate customers' access to various banking services with a mean of (3.99) and STD (0.91).

The bank maintains accurate records of transactions relating to customers with a mean of (3.90) and STD (0.93).

Third Construct: Perceived Responsiveness of Banking Services

The researcher used means, STD, percentage, and level of agreement for each statement of **perceived Responsiveness of banking services**

Table (4.11): Means, STD, Percentage, and Level of Agreement for Responsiveness.

	Dimension	**Rank**	**N**	**Mean**	**STD**	**Percentage**	**Level of agreement**
1.	The bank's management is keen to provide justice and complete equality among all customers without discrimination	7	317	3.48	1.08	69.5%	High
2.	The bank's management is keen to solve the problems facing customers without delay	6	317	3.60	1.04	72.0%	High
3.	The employees are keen to provide services to customers quickly and accurately	4	317	3.71	0.98	74.3%	High

	Dimension	Rank	N	Mean	STD	Percentage	Level of agreement
4.	Employees are present at their workplaces at the appropriate time	5	317	3.63	1.00	72.7%	High
5.	The bank's employees are fully prepared to assist customers and provide services to them	3	317	3.85	0.90	77.0%	High
6.	Meeting customers' requests quickly contributes to the bank's competitive advantage	1	317	4.00	0.91	80.1%	High
7.	The bank's management follows up the desires and needs of customers on an ongoing basis	2	317	3.98	0.91	79.6%	High
Mean of the construct			317	3.75	0.97	75.0%	High

Table (4.11) shows the mean of the third construct of the perceived service quality of banking institutions that is the responsiveness is (3.75) and the range of the mean is (3.48-4.00). This presents that there is a high level of agreement towards the perceived responsiveness of banking services. This means there is a positive attitude toward as the mean of the construct is greater than (3.00).

The highest two statements associated to perceived responsiveness of banking services are:

Meeting customers' requests quickly contributes to the bank's competitive advantage with Meeting customers' requests quickly contributes to the bank's competitive advantage a mean of (4.00) and STD (0.91).

The bank's management follows up the desires and needs of customers on an ongoing basis with a mean of (3.98) and STD (0.91).

Fourth Construct: Perceived Assurance of Banking Services

The researcher used means, STD, percentage, and level of agreement for each statement of **perceived Responsiveness of banking services.**

Table (4.12): Means, STD, Percentage, and Level of Agreement for Assurance.

	Dimension	**Rank**	**N**	**Mean**	**STD**	**Percentage**	**Level of agreement**
1.	Customers feel safe in their dealings with the bank	5	317	3.92	0.84	78.5%	High
2.	The employees at the bank are trustworthy	3	317	4.05	0.88	81.0%	High
3.	The bank provides its customers with means to facilitate their dealings with the bank	4	317	4.03	0.81	80.5%	High
4.	The bank informs customers of developments occurring in banking operations within the bank	2	317	4.10	0.80	82.0%	High
5.	Employees maintain the confidentiality and privacy of customer data	1	317	4.18	0.85	83.5%	High
Mean of the construct			317	4.05	0.84	81.1%	High

Table (4.12) shows the mean of the fourth construct of the perceived service quality of banking services that is perceived assurance of banking services is (4.05) and the range of the mean is (3.92-4.18). This presents that there is a high level of

agreement towards the perceived assurance of banking services. This means there is a positive attitude toward as the mean of the construct is greater than (3.00).

The highest two statements associated to are:

Employees maintain the confidentiality and privacy of customer data with a mean of (4.18) and STD (0.85).

The bank informs customers of developments occurring in banking operations within the bank with a mean of (4.10) and STD (0.80).

Fifth Construct: Perceived Empathy of Banking Services

The researcher used means, STD, percentage, and level of agreement for each statement of **perceived empathy of banking services**.

Table (4.13): Means, STD, Percentage, and Level of Agreement for Empathy.

	Dimension	**Rank**	**N**	**Mean**	**STD**	**Percentage**	**Level of agreement**
1.	Staff have the ability to treat customers with personal attention	4	317	3.95	0.81	78.9%	High
2.	The bank's management is keen to sympathize with customers when problems occur	5	317	3.95	0.85	78.9%	High
3.	There is no place in the bank where I work for mediocrity and favoritism in dealing with customer issues	7	317	3.57	1.11	71.5%	High
4.	The bank provides working hours appropriate to customers' circumstances	6	317	3.82	0.91	76.5%	High

	Dimension	Rank	N	Mean	STD	Percentage	Level of agreement
5.	The bank puts the interests of customers at the forefront of its concerns	3	317	3.98	0.89	79.6%	High
6.	Bank employees know customers' needs and strive to fulfill them	2	317	4.03	0.83	80.5%	High
7.	The bank grants loans and credit facilities to customers with appropriate interest and commissions compared to other banks	1	317	4.08	0.88	81.6%	High
Mean of the construct			317	3.91	0.90	78.2%	High

Table (4.13) shows the mean of the sixth construct of the perceived service quality of banking services that is perceived empathy of banking services is (3.91) and the range of the mean is (3.57-4.08). This presents that there is a high level of agreement towards the perceived assurance of banking services. This means there is a positive attitude toward as the mean of the construct is greater than (3.00).

The highest two statements associated to perceived assurance of banking services are:

The bank grants loans and credit facilities to customers with appropriate interest and commissions compared to other banks with a mean of (4.08) and STD (0.88).

Bank employees know customers' needs and strive to fulfill them with a mean of (4.03) and STD (0.83).

9 Are there significant differences in the studied sample responses towards the importance of six-sigma implementation with respect to managerial level, experience level, education achievement, and age?

Based on this question, the researcher developed the following hypotheses:

There is No Significance Statistical Differences at ($\alpha \leq 0.05$) in the Studied Sample Towards Implementation of Six Sigma Attributed to Age of the Respondent.

The researcher used ANOVA procedures to test the above hypothesis as follows:

Table (4.14) Analysis of the Differences in the Mean of the Studied Sample Toward the Implementation of Six Sigma Attributed to Age

		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Management support and commitment	Between Groups	7.331	3	2.444	3.674	.013
	Within Groups	208.160	313	.665		
	Total	215.491	316			
feedback	Between Groups	7.743	3	2.581	3.800	.011
	Within Groups	212.595	313	.679		
	Total	220.339	316			
continuous improvement	Between Groups	4.718	3	1.573	1.876	.133
	Within Groups	262.358	313	.838		
	Total	267.076	316			
HR	Between Groups	8.984	3	2.995	4.000	.008
	Within Groups	234.348	313	.749		
	Total	243.331	316			

		Sum of Squares	df	Mean Square	F	Sig.
Operations and systems	Between Groups	6.303	3	2.101	2.506	.059
	Within Groups	262.422	313	.838		
	Total	268.725	316			
communication	Between Groups	7.228	3	2.409	2.893	.036
	Within Groups	260.709	313	.833		
	Total	267.937	316			
Six SEGMA	Between Groups	6.559	3	2.186	4.145	.007
	Within Groups	165.078	313	.527		
	Total	171.637	316			

Table (4.14) presents that there are insignificant differences in the mean of the studied sample toward the extent of the continuous improvement and operations and systems as dimension of Six Sigma in banking institutions attributed to age. However, there are differences in the studied sample responses toward management support and commitment, feedback, HR, and continuous improvement attributed to age. The differences were for the best interest of whose age is in range of over 50 years,

4.3 Hypotheses Testing

There is no significance statistical differences at ($\alpha \leq 0.05$) in the studied sample towards implementation of Six Sigma attributed to gender of the respondent.

The researcher used t-test to test the above hypothesis as follows:

Table (4.15) Analysis of the Differences in the Mean of the Studied Sample Toward the Implementation of Six Sigma Attributed to Gender

	Gender	N	Mean	Std. Deviation	Std. Error Mean	t-value	Sig.
Management support and commitment	Male	157	3.69	.79	.06	.668	.414
	Female	160	3.46	.84	.07		
feedback	Male	157	3.54	.85	.07	.537	.464
	Female	160	3.45	.82	.06		
continuous improvement	Male	157	3.69	.94	.07	.153	.696
	Female	160	3.58	.90	.07		
HR	Male	157	3.52	.90	.07	1.183	.278
	Female	160	3.35	.85	.07		
Operations and systems	Male	157	3.61	.91	.07	.053	.818
	Female	160	3.50	.93	.07		
communication	Male	157	3.42	.93	.07	.108	.743
	Female	160	3.24	.90	.07		
Six SEGMA	Male	157	3.58	.74	.059	.197	.657
	Female	160	3.43	.73	.057		

Table (4.15) presents that there are insignificant differences in the mean of the studied sample toward the extent of the Six Sigma implementation of all the constructs attributed to gender. This means that both males and females have similar attitudes towards Six Sigma implementation in banking institutions in Palestine.

There is no Significance Statistical Differences at ($\alpha \leq 0.05$) in the Studied Sample Towards Implementation of Six Sigma Attributed to Marital Status of the Respondent.

The researcher used ANOVA procedures to test the above hypothesis as follows:

Table (4.16) Analysis of the Differences in the Mean of the Studied Sample Toward the Implementation of Six Sigma Attributed to Marital Status.

		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Management support and commitment	Between Groups	6.21	3	2.070	3.10	.027
	Within Groups	209.28	313	.669		
	Total	215.49	316			
feedback	Between Groups	5.12	3	1.706	2.481	.061
	Within Groups	215.22	313	.688		
	Total	220.34	316			
continuous improvement	Between Groups	3.66	3	1.220	1.449	.228
	Within Groups	263.42	313	.842		
	Total	267.08	316			
HR	Between Groups	9.65	3	3.217	4.309	.005
	Within Groups	233.68	313	.747		
	Total	243.33	316			
Operations and systems	Between Groups	8.05	3	2.683	3.222	.023
	Within Groups	260.68	313	.833		
	Total	268.73	316			
communication	Between Groups	8.96	3	2.987	3.610	.014
	Within Groups	258.98	313	.827		
	Total	267.94	316			
Six Sigma	Between Groups	5.45	3	1.82	3.42	.02
	Within Groups	166.19	313	.53		
	Total	171.64	316			

Table (4.16) presents that there are insignificant differences in the mean of the studied sample toward the extent of the feedback and continuous improvement. However, there are significant differences in the mean of the studied sample toward the

extent of the Management support and committment, HR, Operations and systems, communication, and Six Sigma attributed to marital status. The differences were for the best interest of marital status.

There is no Significance Statistical Differences at ($\alpha \leq 0.05$) in the Studied Sample Towards Implementation of Six Sigma Attributed to Academic Achievement of the Respondent.

The researcher used ANOVA procedures to test the above hypothesis as follows:

Table (4.17) Analysis of the Differences in the Mean of the Studied Sample Toward the Implementation of Six Sigma Attributed to Academic Achievement.

		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Management support and commitment	Between Groups	8.96	4	2.241	3.385	.010
	Within Groups	206.53	312	.662		
	Total	215.49	316			
feedback	Between Groups	11.28	4	2.820	4.208	.002
	Within Groups	209.06	312	.670		
	Total	220.34	316			
continuous improvement	Between Groups	12.06	4	3.014	3.688	.006
	Within Groups	255.02	312	.817		
	Total	267.08	316			
HR	Between Groups	11.27	4	2.817	3.788	.005
	Within Groups	232.06	312	.744		
	Total	243.33	316			

		Sum of Squares	df	Mean Square	F	Sig.
Operations and systems	Between Groups	5.46	4	1.365	1.617	.170
	Within Groups	263.27	312	.844		
	Total	268.73	316			
communication	Between Groups	7.57	4	1.893	2.269	.06
	Within Groups	260.36	312	.834		
	Total	267.94	316			
Six Sigma	Between Groups	9.022	4	2.256	4.328	.002
	Within Groups	162.615	312	.521		
	Total	171.637	316			

Table (4.17) presents that there are insignificant differences in the mean of the studied sample toward the extent of the operations and system, and communication. However, Management support and commitment, feedback, continuous improvement, HR, and Six Sigma attributed to academic achievement. However, there are significant differences in the mean of the studied sample toward the extent of the management support and commitment, feedback, continuous improvement, HR, and Six Sigma attributed to academic achievement. The differences were for the best interest of PhD.

There is no Significance Statistical Differences at ($\alpha \leq 0.05$) in the Studied Sample Towards Implementation of Six Sigma Attributed to the Position of the Respondent.

The researcher used ANOVA procedures to test the above hypothesis as follows:

Table (4.18) Analysis of the Differences in the Mean of the Studied Sample Toward the Implementation of Six Sigma Attributed to Positions.

		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Management support and commitment	Between Groups	5.10	3	1.70	2.53	.057
	Within Groups	210.39	313	.67		
	Total	215.49	316			
feedback	Between Groups	7.50	3	2.50	3.67	.013
	Within Groups	212.84	313	.68		
	Total	220.34	316			
continuous improvement	Between Groups	10.03	3	3.34	4.07	.007
	Within Groups	257.05	313	.82		
	Total	267.08	316			
HR	Between Groups	9.11	3	3.04	4.06	.007
	Within Groups	234.21	313	.75		
	Total	243.33	316			
Operations and systems	Between Groups	8.22	3	2.74	3.29	.021
	Within Groups	260.51	313	.83		
	Total	268.73	316			
communication	Between Groups	14.17	3	4.72	5.83	.001
	Within Groups	253.77	313	.81		
	Total	267.94	316			

		Sum of Squares	df	Mean Square	F	Sig.
Six SEGMA	Between Groups	7.57	3	2.52	4.82	.003
	Within Groups	164.066	313	.524		
	Total	171.637	316			

Table (4.18) presents that there are insignificant differences in the mean of the studied sample toward the extent of the management support and commitment attributed to position. However, there are insignificant differences attributed to feedback, continuous improvement, HR, Operations and systems, communication, and Six SEGMA attributed to position. The differences were for the best interest of managers' position.

There is no Significance Statistical Differences at ($\alpha \leq 0.05$) in the Studied Sample Towards Implementation of Six Sigma Attributed to Nationality of Bank.

The researcher used t-test to test the above hypothesis as follows:

Table (4.19) Analysis of the Differences in the Mean of the Studied Sample Toward the Implementation of Six Sigma Attributed to Nationality of Bank.

	Gender	N	Mean	Std. Deviation	Std. Error Mean	t-value	Sig.
Management support and commitment	Local Bank	177	3.61	.79	.059	2.581	.109
	Foreign Bank	140	3.54	.87	.073		
feedback	Local Bank	177	3.48	.83	.062	.029	.865
	Foreign Bank	140	3.51	.84	.07		
continuous improvement	Local Bank	177	3.65	.92	.069	.271	.603
	Foreign Bank	140	3.62	.92	.078		

	Gender	N	Mean	Std. Deviation	Std. Error Mean	t-value	Sig.
HR	Local Bank	177	3.44	.88	.066	.000	.990
	Foreign Bank	140	3.44	.88	.074		
Operations and systems	Local Bank	177	3.59	.88	.066	2.600	.108
	Foreign Bank	140	3.51	.97	.08		
communication	Local Bank	177	3.30	.90	.067	.179	.672
	Foreign Bank	140	3.36	.95	.08		
Six SEGMA	Local Bank	177	3.51	.70	.05	1.824	.178
	Foreign Bank	140	3.49	.78	.066		

Table (4.19) presents that there are insignificant differences in the mean of the studied sample toward the extent of the Six Sigma implementation of all the constructs attributed to nationality of bank.

There is no Significance Statistical Differences at ($\alpha \leq 0.05$) in the Studied Sample Towards Implementation of Six Sigma Attributed to Nationality of Bank.

The researcher used t-test to test the above hypothesis as follows:

Table (4.20) Analysis of the Differences in the Mean of the Studied Sample Toward the Implementation of Six Sigma Attributed to Nature of the Bank.

	Gender	N	Mean	Std. Deviation	Std. Error Mean	t-value	Sig.
Management support and commitment	Islamic Bank	117	3.64	0.75	0.07	4.33	0.04
	Convenient Bank	200	3.54	0.87	0.06		

	Gender	N	Mean	Std. Deviation	Std. Error Mean	t-value	Sig.
feedback	Islamic Bank	117	3.52	0.83	0.08	0.26	0.61
	Convenient Bank	200	3.47	0.84	0.06		
continuous improvement	Islamic Bank	117	3.68	0.91	0.08	0.01	0.95
	Convenient Bank	200	3.61	0.93	0.07		
HR	Islamic Bank	117	3.51	0.86	0.08	0.44	0.51
	Convenient Bank	200	3.40	0.89	0.06		
Operations and systems	Islamic Bank	117	3.67	0.85	0.08	5.40	0.02
	Convenient Bank	200	3.49	0.96	0.07		
communication	Islamic Bank	117	3.31	0.91	0.08	0.04	0.84
	Convenient Bank	200	3.34	0.93	0.07		
Six SEGMA	Islamic Bank	117	3.56	0.68	0.06	3.08	0.08
	Convenient Bank	200	3.47	0.77	0.05		

Table (4.20) presents that there are insignificant differences in the mean of the studied sample toward the extent of the Six Sigma constructs feedback, continuous improvement, HR, communication, and Six Sigma attributed to nature of the bank. However, there are significant differences in the studied sample responses toward management support and commitment attributed to nature of the banks and it was for the best interest of Islamic banks. Likewise, there are differences in the studied sample

responses toward operations and systems attributed to nature of the bank and it was for the best interest of Islamic banks.

Are there Significant Differences in the Studied Sample Responses Towards the Perceived Quality of Banking Services with Respect to Managerial Level, Experience Level, Education Achievement, and Age?

Based on this question, the researcher developed the following hypotheses:

There is no Significance Statistical Differences at ($\alpha \leq 0.05$) in the Studied Sample Towards the Perceived Quality of Banking Services Attributed to Age of the Respondent.

The researcher used ANOVA procedures to test the above hypothesis as follows:

Table (4.21) Analysis of the Differences in the Mean of the Studied Sample Toward the Perceived Quality of Banking Services Attributed to Age

		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Tangibility	Between Groups	3.663	3	1.221	1.726	.16
	Within Groups	221.460	313	.708		
	Total	225.123	316			
Reliability	Between Groups	3.923	3	1.308	2.089	.10
	Within Groups	195.928	313	.626		
	Total	199.852	316			

		Sum of Squares	df	Mean Square	F	Sig.
Responsiveness	Between Groups	3.106	3	1.035	1.594	.191
	Within Groups	203.267	313	.649		
	Total	206.374	316			
Assurance	Between Groups	6.166	3	2.055	3.918	.009
	Within Groups	164.199	313	.525		
	Total	170.365	316			
Empathy	Between Groups	2.737	3	.912	1.766	.153
	Within Groups	161.637	313	.516		
	Total	164.374	316			
Service quality	Between Groups	2.945	3	.982	2.257	.082
	Within Groups	136.130	313	.435		
	Total	139.075	316			

Table (4.21) presents that there are insignificant differences in the mean of the studied sample toward the extent of the perceived quality of banking services attributed to age expect of the perceived assurance quality of services attributed to age. The difference was for the best interest of 40-49 years.

There is No Significance Statistical Differences at ($\alpha \leq 0.05$) in the Studied Sample Towards Implementation of Six Sigma Attributed to Gender of the Respondent.

The researcher used t-test to test the above hypothesis as follows:

Table (4.22) Analysis of the Differences in the Mean of the Studied Sample Toward the Perceived Quality of Banking Services Attributed to Gender

	Gender	N	Mean	Std. Deviation	Std. Error Mean	t-value	Sig.
Tangibility	Male	157	3.88	.89	.072	1.451	.229
	Female	160	3.87	.79	.062		
Reliability	Male	157	3.84	.79	.063	.655	.419
	Female	160	3.74	.80	.064		
Responsiveness	Male	157	3.84	.79	.06	.455	.500
	Female	160	3.66	.82	.06		
Assurance	Male	157	4.07	.75	.06	.851	.357
	Female	160	4.04	.72	.057		
Empathy	Male	157	3.93	.69	.056	.610	.435
	Female	160	3.89	.746	.059		
Service quality	Male	157	3.91	.66	.05	.077	.782
	Female	160	3.83	.66	.05		

Table (4.22) presents that there are insignificant differences in the mean of the studied sample toward the extent of the perceived quality of banking services attributed to gender expect of the perceived assurance quality of services attributed to gender.

There is No Significance Statistical Differences at ($\alpha \leq 0.05$) in the Studied Sample Towards the Perceived Quality of Banking Services Attributed to Marital Status of the Respondent.

The researcher used ANOVA procedures to test the above hypothesis as follows:

Table (4.23) Analysis of the Differences in the Mean of the Studied Sample Toward the Perceived Quality of Banking Services Attributed to Marital Status of the Respondent

		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Tangibility	Between Groups	2.773	3	.924	1.301	.274
	Within Groups	222.350	313	.710		
	Total	225.123	316			
Reliability	Between Groups	2.038	3	.679	1.075	.360
	Within Groups	197.814	313	.632		
	Total	199.852	316			
Responsiveness	Between Groups	4.076	3	1.359	2.102	.10
	Within Groups	202.298	313	.646		
	Total	206.374	316			
Assurance	Between Groups	4.024	3	1.341	2.524	.058
	Within Groups	166.341	313	.531		
	Total	170.365	316			
Empathy	Between Groups	2.877	3	.959	1.859	.137
	Within Groups	161.497	313	.516		
	Total	164.374	316			
Service quality	Between Groups	2.390	3	.797	1.825	.143
	Within Groups	136.685	313	.437		
	Total	139.075	316			

Table (4.23) presents that there are insignificant differences in the mean of the studied sample toward the extent of the perceived quality of banking services attributed to marital status.

There is No Significance Statistical Differences at ($\alpha \leq 0.05$) in the Studied Sample Towards the Perceived Quality of Banking Services Attributed to Academic Achievement of the Respondent.

The researcher used ANOVA procedures to test the above hypothesis as follows:

Table (4.24) Analysis of the Differences in the Mean of the Studied Sample Toward the Perceived Quality of Banking Services Attributed to Academic Achievement.

		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Tangibility	Between Groups	2.941	4	.735	1.032	.39
	Within Groups	222.182	312	.712		
	Total	225.123	316			
Reliability	Between Groups	6.621	4	1.655	2.673	.032
	Within Groups	193.230	312	.619		
	Total	199.852	316			
Responsiveness	Between Groups	4.729	4	1.182	1.829	.123
	Within Groups	201.644	312	.646		
	Total	206.374	316			
		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**

Assurance	Between Groups	4.564	4	1.141	2.147	.075
	Within Groups	165.801	312	.531		
	Total	170.365	316			
Empathy	Between Groups	3.797	4	.949	1.844	.120
	Within Groups	160.577	312	.515		
	Total	164.374	316			
Service quality	Between Groups	3.999	4	1.000	2.309	.058
	Within Groups	135.076	312	.433		
	Total	139.075	316			

Table (4.24) presents that there are insignificant differences in the mean of the studied sample toward the extent of the perceived quality of banking services attributed to academic achievement except for reliability. And it was for the best interest of PhD.

There is No Significance Statistical Differences at ($\alpha \leq 0.05$) in the Studied Sample Towards the Perceived Quality of Banking Services Attributed to Position of the Respondent.

The researcher used ANOVA procedures to test the above hypothesis as follows:

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Table (4.25) Analysis of the Differences in the Mean of the Studied Sample Toward the Perceived Quality of Banking Services Attributed to Positions.

		Sum of Squares	df	Mean Square	F	Sig.
Tangibility	Between Groups	1.569	3	.523	.732	.533
	Within Groups	223.554	313	.714		
	Total	225.123	316			
Reliability	Between Groups	8.334	3	2.778	4.540	.004
	Within Groups	191.518	313	.612		
	Total	199.852	316			
Responsiveness	Between Groups	3.665	3	1.222	1.887	.132
	Within Groups	202.708	313	.648		
	Total	206.374	316			
Assurance	Between Groups	6.503	3	2.168	4.140	.007
	Within Groups	163.862	313	.524		
	Total	170.365	316			
Empathy	Between Groups	3.445	3	1.148	2.233	.084
	Within Groups	160.930	313	.514		
	Total	164.374	316			
Service quality	Between Groups	3.797	3	1.266	2.929	.034
	Within Groups	135.278	313	.432		
	Total	139.075	316			

Table (4.25) presents that there are insignificant differences in the mean of the studied sample toward the extent of the perceived quality of banking services attributed to position in the tangibility, responsiveness, and empathy. On the other hand, there is significant differences in the mean of the studied sample toward the extent of the perceived quality of banking services attributed to position in the reliability, assurance,

and service quality. The differences were for the best interest of managers and assistant managers.

There is No Significance Statistical Differences at ($\alpha \leq 0.05$) in the Studied Sample Towards the Perceived Quality of Banking Services Attributed to Nationality of Bank.

The researcher used ANOVA procedures to test the above hypothesis as follows:

Table (4.26) Analysis of the Differences in the Mean of the Studied Sample Toward the Perceived Quality of Banking Services Attributed to Nationality of Bank.

	Gender	N	Mean	Std. Deviation	Std. Error Mean	t- value	Sig.
Tangibility	Local Bank	177	3.93	.80	.06	1.682	.196
	Foreign Bank	140	3.80	.89	.076		
Reliability	Local Bank	177	3.79	.78	.058	.216	.642
	Foreign Bank	140	3.79	.82	.069		
Responsiveness	Local Bank	177	3.75	.79	.059	1.095	.296
	Foreign Bank	140	3.76	.84	.07		
Assurance	Local Bank	177	4.04	.73	.05	.211	.646
	Foreign Bank	140	4.07	.75	.06		
Empathy	Local Bank	177	3.88	.74	.055	.390	.533
	Foreign Bank	140	3.95	.70	.059		
Service quality	Local Bank	177	3.87	.65	.049	.142	.706
	Foreign Bank	140	3.87	.68	.057		

Table (4.26) presents that there are insignificant differences in the mean of the studied sample toward the extent of the perceived quality of banking services attributed to nationality of bank.

There is No Significance Statistical Differences at ($\alpha \leq 0.05$) in the Studied Sample Towards the Perceived Quality of Banking Services Attributed to Nature of the Bank of the Respondent.

The researcher used ANOVA procedures to test the above hypothesis as follows:

Table (4.27) Analysis of the Differences in the Mean of the Studied Sample Toward the Perceived Quality of Banking Services Attributed to Nature of the Bank.

	Gender	**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**	**t-value**	**Sig.**
Tangibility	Islamic Bank	117	3.98	.79	.07	2.929	.088
	Convenient Bank	200	3.81	.87	.06		
Reliability	Islamic Bank	117	3.85	.75	.069	2.020	.156
	Convenient Bank	200	3.76	.82	.058		
Responsiveness	Islamic Bank	117	3.81	.76	.070	2.29	.131
	Convenient Bank	200	3.72	.84	.059		
Assurance	Islamic Bank	117	4.09	.76	.069	.131	.718
	Convenient Bank	200	4.03	.725	.051		
Empathy	Islamic Bank	117	3.92	.744	.069	.149	.700
	Convenient Bank	200	3.91	.709	.05		
Service quality	Islamic Bank	117	3.92	.65	.06	.428	.513
	Convenient Bank	200	3.84	.67	.047		

Table (4.27) presents that there are insignificant differences in the mean of the studied sample toward the extent of the perceived quality of banking services attributed to nature of bank.

4.4 Correlation Analysis of the Relationship Between Implementation of Six Sigma Constructs and Quality

What is the Relationship Between Implementation of Six Sigma Constructs and Quality of Banking Services?

The researcher used Pearson correlation to examine the power of correlation between each construct of Six Sigma implementation and quality of banking services. The correlation matrix shows in general there is good level of correlation between each construct of Six Sigma implementation and quality of banking services. The highest correlation exists between continuous improvement and quality of banking services (0.668). Followed by the correlation between feedback and quality of banking services (0.655). Then the correlation between communication and quality of banking services (0.631). The least correlation exists between management support and commitment and quality of banking services (0.558).

Table (4.28): The Pearson Correlation Between Six Sigma Implementation Constructs and Quality of Banking Services.

Correlations								
		Quality	Management support and commitment	feedback	Continuous improvement	HR	Operations and systems	Communication
Pearson Correlation	Quality of banking services	1.000						
	Management support and commitment	.558	1.000					
	feedback	.655	.672	1.000				
	Continuous improvement	.668	.657	.771	1.000			
	HR	.600	.635	.674	.745	1.000		
	Operations and systems	.606	.632	.631	.721	.788	1.000	
	Communication	.631	.497	.600	.565	.567	.552	1.000

Furthermore, the researcher found the Pearson correlation to find the power of the relationship between Six Sigma implementation and quality of banking services. The Pearson correlation shows that the Pearson correlation coefficient is (0.734) that is a high level of correlation between the two variables.

Table (4.29): The Pearson Correlation Between Six Sigma Implementation and Quality of Banking Services.

Correlations			
		SEGMA	Quality
SEGMA	Pearson Correlation	1	.734**
	Sig. (2-tailed)		.000
	N	317	317
Quality	Pearson Correlation	.734**	1
	Sig. (2-tailed)	.000	
	N	317	317
**. Correlation is significant at the 0.01 level (2-tailed).			

4.5 The Effect of Six Sigma Implementation on Quality of Banking Services

What is the effect of Six Sigma implementation on quality of banking services?

The researcher used multivariate regression analysis to estimate the effect of Six Sigma implementation on quality of banking services.

Table (4.30): Multivariate Regression Analysis of the Effect of Six Sigma Implementation on Quality of Banking Services.

MODEL	R	R Square	Adjusted R Square	Durbin-Watson	F	Sig.	Construct	B	Sig.
1	.754[a]	.568	.560	1.781	67.987	.000[b]	(Constant)	1.565	.000
							Support and commitment	.046	.303
							feedback	.142	.006
							improvement	.171	.001
							HR	.005	.924
							System	.086	.069
							Communication	.210	.000

The analysis shows that the value of R square is (0.568) and the adjusted R square is (0.56). This mean the implementation of six-sigma in banking institutions explains almost (56%) of the change in the quality of the banking services. That is there is good level of effect of Six Sigma implementation on quality of banking services. Whereas, other variables beyond the scope of this study explain the remaining (44%).

The value of F test is (67.987) and the value of the significant is (0.00). This means that the model is fit and there is significant effect of Six Sigma implementation on quality of banking services.

According to the constructs of Six Sigma implementation, the analysis shows there is a positive and significant effect of feedback, continuous improvement, and

communication on the quality of banking services. However, there is a positive but insignificant effect of management support and commitment, HR, and operations and systems on the quality of banking services.

4.6 Summary of Tested Hypotheses.

The researcher in this chapter analyzed the responses of the investigated sample using SPSS version to answer the study questions and test the validity of the hypotheses. The study results found that there are insignificant differences in the mean of the studied sample toward the extent of the Six Sigma implementation of all the constructs attributed to gender. However, there are significant differences in the mean of the studied sample toward the extent of the Management support and commitment, HR, Operations and systems, communication, and Six Sigma attributed to marital status. The differences were for the best interest of marital status.

There are insignificant differences in the mean of the studied sample toward the extent of the operations and system, and communication. However, Management support and commitment, feedback, continuous improvement, HR, and Six Sigma attributed to academic achievement. However, there are significant differences in the mean of the studied sample toward the extent of the management support and commitment, feedback, continuous improvement, HR, and Six Sigma attributed to academic achievement. The differences were for the best interest of PhD.

There are insignificant differences in the mean of the studied sample toward the extent of the management support and commitment attributed to position. However, there are insignificant differences attributed to feedback, continuous improvement, HR,

Operations and systems, communication, and Six SEGMA attributed to position. The differences were for the best interest of managers' position.

There are insignificant differences in the mean of the studied sample toward the extent of the Six Sigma implementation of all the constructs attributed to nationality of bank.

There are insignificant differences in the mean of the studied sample toward the extent of the Six Sigma constructs feedback, continuous improvement, HR, communication, and Six Sigma attributed to nature of the bank. However, there are significant differences in the studied sample responses toward management support and commitment attributed to nature of the banks and it was for the best interest of Islamic banks. Likewise, there are differences in the studied sample responses toward operations and systems attributed to nature of the bank and it was for the best interest of Islamic banks.

There are insignificant differences in the mean of the studied sample toward the extent of the perceived quality of banking services attributed to age expect of the perceived assurance quality of services attributed to age. The difference was for the best interest of 40-49 years.

There are insignificant differences in the mean of the studied sample toward the extent of the perceived quality of banking services attributed to gender expect of the perceived assurance quality of services attributed to gender, marital status, nationality of bank, and nature of bank.

There are insignificant differences in the mean of the studied sample toward the extent of the perceived quality of banking services attributed to academic achievement except for reliability. And it was for the best interest of PhD.

There are insignificant differences in the mean of the studied sample toward the extent of the perceived quality of banking services attributed to position in the tangibility, responsiveness, and empathy. On the other hand, there is significant differences in the mean of the studied sample toward the extent of the perceived quality of banking services attributed to position in the reliability, assurance, and service quality. The differences were for the best interest of managers and assistant managers.

The Pearson correlation shows that the Pearson correlation coefficient is (0.734) that is a high level of correlation between Six Sigma implementation and quality of banking services.

The analysis shows that the value of R square is (0.568) and the adjusted R square is (0.56). This mean the implementation of six-sigma in banking institutions explains almost (56%) of the change in the quality of the banking services. That is there is good level of effect of Six Sigma implementation on quality of banking services. Whereas, other variables beyond the scope of this study explain the remaining (44%). The value of F test is (67.987) and the value of the significant is (0.00). This means that the model is fit and there is significant effect of Six Sigma implementation on quality of banking services.

According to the constructs of Six Sigma implementation, the analysis shows there is a positive and significant effect of feedback, continuous improvement, and communication on the quality of banking services. However, there is a positive but insignificant effect of management support and commitment, HR, and operations and systems on the quality of banking services.

Chapter Five

Conclusions and Recommendations

5.1 Overview

This chapter presents the conclusion and recommendations of this study. It consists of eight sections, including an overview of the chapter. Then, discussion of the findings. Then, the chapter presents the conclusions of this study. Contributions to theory and practice. The researcher suggested some recommendations to enhance the implementation of six-sigma in banking institutions to improve the quality of banking services. Eventually, the researcher defined the limitations of this thesis and provide direction for further studies to be performed in this context.

5.2 Discussion of Findings

The study results demonstrated there is a positive effect of Six Sigma implementation on the quality of banking services. The main explanation of this results that the banking institutions in Palestine have the financial capabilities to use quality and excellence applications. Besides, they have the readiness and enthusiasm to use the principles of quality and excellence. Moreover, they are willing to use contemporary methods in the field of quality and excellence. Eventually, they focus on providing high-quality banking services to strengthen their institutions competitive position. This result is in consistent with Lodgaard et al. (2016) stated that management support and commitment decrease resistance to change and improve creativity and innovation inside the business. Moreover, Raghunath and Jayathirtha (2013) revealed that management support and commitment play an essential role in the development of clear awareness of and understanding of the employees` recognition and awareness of Six Sigma.

Likewise, Sreedharan (2019) argued that communication and teamwork are essential requirements for the success of six-sigma implementation

The study revealed that banking institution involve highly in feedback and measurement to improve the quality of banking institutions. The main explanation of this result that the bank's management relies on financial indicators to measure and monitor the results of adopting performance evaluation in accordance with established standards. Besides, the senior management of banking institution relies on non-financial indicators to measure and monitor the results of adopting performance evaluation in accordance with established standards. Moreover, the measurement methods adopted by the bank contribute to improving overall performance. Eventually, banking institution is keen to know the opinion of its customers about the services. Likewise, there are programs that help the administration evaluate the unit’s performance on an ongoing basis. This result is in line with Payne et al (2018) who found that the competency of human resources is a critical factor influencing the quality of banking services, professional employees, and polite behavior with customers, and efficient communication skills have a positive effect on the quality of banking services. Furthermore, Parcha (2022) found proficient employees who have high experience, knowledge, and qualification have more potential to service customers with high quality service. Besides, they have more potential to achieve better job satisfaction.

The study proved that banking institution institutions involve in continuous improvement to develop the quality of banking services as they interest to implement the principles of quality and excellence in the bank helps improve the quality of banking services provided to customers. Besides, they are keen to provide competitive banking services and products in the banking sector. Furthermore, they involve in employees`

training and developing of the human resources. Eventually, the banking managements interest to prepare studies to survey customers' opinions about the quality of banking services provided by the bank. This result is in line with There are several studies found a positive effect of continuous improvement on quality of banking services as Abu Nahya (2012); Adrian (2016); Al-Nathar (2017); Altorkhana (2016); Antunes et al. (2013); Dey (2014); Laureani & Antony (2018); Pakdil and Leonard (2015); Suleiman and Abdullah (2022); Tsironis and Psychogios (2016); Yazan (2018); and Zhuo (2019) found a positive effect of continuous improvement on the quality of banking services in Palestine.

The success of the Six Sigma implementation relies heavily on the proficiency and existence of highly qualified and educated human resources. Thus, they involve in employees` training and development as the bank's management is willing to appoint experts and consultants for quality and excellence applications. Besides, they have sufficient annual budget allocated for training. Besides, they have an annual plan to identify training needs. Likewise, training programs aim to prevent errors in order to provide the highest level of service. According to Alzabari et al. (2019), good familiarity with statistics techniques is an essential requirement for the successful implementation of Six Sigma; thus, training is an essential and critical success factor for Six Sigma implementations. Besides, employees should be trained on the optimal procedures to perform activities and practices with a high level of quality (Mustafa & Jamaludin, 2017). In this regard, Talab et al. (2017) demonstrated that practical training ought to be integrated with traditional training and development, as this helps to implement the new knowledge and awareness in six-sigma implementations.

The study result demonstrated that banking institutions in Palestine interest in development and enhance of banking institutions` operations and systems as these managements have the efficient and effective methods to analyze the activities necessary to provide the service. Furthermore, the banking institutions have the advanced evaluation methods that enable it to judge the strength of the borrower's financial position. Besides, the banking managements use uses databases and administrative information to facilitate customer service. Moreover, the bank management provides all the supplies and tools necessary for the employee to accomplish his duties. There are a number of studied have documented a positive correlation between operations and management on the quality of banking services (Al-Abdallah and Lic, 2020; Abdullah and Patrick,2016; Altorkhana, 2016; Al Nahdir, 2017; Chakraborty and Leyer, 2013; Garza-Reyes, 2015; Ibrahim, 2019; Ismyrlis et al., 2018; Laureani and Antony, 2019; Mezouari et al., 2013; Nazer, 2017; Noori et al., 2018; Srinivas and Sreedharan; Thakur et al., 2019).

The study results demonstrated there is moderate level of efficient and high quality communication culture and efficient policies to improve the quality of communication as they follow an open-door policy with employees. Besides, there are effective means of direct communication between employees and customers. Likewise, the management at the bank continuously seeks to overcome obstacles and complications in customer service using multiple communication channels. Moreover, the banking institutions have clear and defined organizational structure. Besides, the administrative decision in the bank is characterized by flexibility at different administrative levels.

Efficient communication in organization has an efficient effect on the quality of banking services as this helps to specify the organization or the project mission and

objectives of the project, distributing existing resources, setting the timetable to perform this project, evaluating the performance of individuals, and supporting and managing the required communication to set the road map for six-sigma implementations. Moreover, removing limitations and challenges and decreasing employee and management resistance. The success of the six-sigma implementation relies to a large extent on active communication, either vertical or horizontal. Moreover, efficient flow of information in the business has an interesting role in improving communication and teamwork. This argument is in line with (Akbulut Yazan, 2018; Albliwi et al., 2014; AL Nahdir, 2017; Antony et al., 2016; Khalaf, 2020; McLean et al., 2017; Singh et al. 2019; Sinha, et al., 2020; Sreedharan, 2019).

5.3 Conclusions

The study proved that Six Sigma practice has a significant effect on the quality of banking services in banking institutions in Palestine. The mean of overall the practice of Six Sigma is (3.51) and the range of the mean is (3.33-3.64). This means there is a high level of agreement towards the existence of Six Sigma requirements in banking institutions in Palestine. The highest two constructs associated to six-sigma are: Continuous improvement with a mean of (3.64) and the second constitute is management support and commitment with a mean of (3.58).

The mean of the overall of perceived quality of banking service is (3.87) and the range of the mean is (3.75-4.05). This presents that there is a high level of agreement towards the perceived quality of banking services in banking institutions in Palestine. The highest construct of perceived service quality is perceived assurance of

banking service quality with a mean of (4.05) and the second construct is perceived empathy of banking service quality with a mean of (3.91).

There are in general insignificant differences in the studied sample attitudes and views towards the extent of Six Sigma implementation and perceived quality of banking services attributed to personal and demographic variables.

The correlation matrix shows in general there is a good level of correlation between each construct of Six Sigma implementation and quality of banking services. The highest correlation exists between continuous improvement and quality of banking services (0.668). Followed by the correlation between feedback and quality of banking services (0.655). Then the correlation between communication and quality of banking services (0.631). The least correlation exists between management support and commitment and quality of banking services (0.558). Furthermore, the Pearson correlation shows that the Pearson correlation coefficient is (0.734) that is a high level of correlation between the two variables.

The value of R square is (0.568) and the adjusted R square is (0.56). This means the implementation of six-sigma in banking institutions explains almost (56%) of the change in the quality of the banking services. Besides, the value of F test is (67.987) and the value of the significant is (0.00) that is there is significant effect of Six Sigma implementation on quality of banking services.

The analysis shows there is a positive and significant effect of feedback, continuous improvement, and communication on the quality of banking services. However, there is a positive but insignificant effect of management support and commitment, HR, and operations and systems on the quality of banking services.

5.4 Theoretical Contribution

This study contributes to the literature by expanding the knowledge through exploring to what extent banking institutions in Palestine use Six Sigma as a quality management tool to improve the quality of banking services offered to customers in the Palestinian context considering that Palestine receive minimal attention in literature in this field of research. Besides, to measure the effect of six-sigma on the perceived quality of banking services using the Servqual model, which is one of the most commonly used instruments to measure the perceived quality of diverse services. Some of the most critical success factors of using Six Sigma are: management support and commitment, feedback, continuous improvement, HR qualifications, operations and systems, and communication. The researcher conducted an intensive critical revision of previous empirical studies that explored this topic in different contexts around the world, either in developed or developing countries. Then, develop a specific model based on the variables of the study to answer the research questions, achieve the objectives, and test the hypotheses of this study. The researcher examined the model using SPSS version 29; the data was collected from a sample of 317 employees in banking institutions.

5.5 Contribution to Practice

This study has a valuable contribution to the practice of banking institutions in Palestine by providing the board of directors and senior management of these institutions with the opportunity to practice and implement six-sigma to develop and enhance the quality of banking services, as banking institutions in Palestine play an essential role in economic development. Besides, the improvement of quality is an

interesting issue and a determinant of their business sustainability and development. Thus, banking institutions always work hard to experience and use innovative approaches and techniques to improve the quality of their services and products. Thus, this study is an interesting direction and roadmap for senior managers in banking institutions to involve six-sigma as an interesting quality management approach.

The findings of the study demonstrated that six-sigma implementation is an interesting approach to affecting the quality of banking services. Thus, this study triggers managers to achieve better success through investment in quality enhancement by investing in six-sigma implementation. Thus, they can use this approach to improve their financial performance.

5.6 Recommendations

Based on the findings of this study, the researcher suggests the following:

1. The study proved there is a positive and significant effect of six-sigma implementation on the quality of banking services. Thus, the researcher suggests that banking institutions have to adopt and implement the six-sigma philosophy as an interesting way to develop and enhance the quality of banking services through enhancing the management support and commitment to implement this model. Besides, it is interesting to see continuous feedback from employees and the organization`s performance. Likewise, acquire talented employees and senior managers and invest in employees'' development.
2. The study found that management support and commitment is a critical success factor in six-sigma implementation in banking institutions. Thus, the researcher suggests that banking institutions should set aside adequate financial resources and

capabilities to use Six Sigma and other interesting excellence applications to develop the quality of banking services. Besides, the management should encourage creative thinking to implement Six Sigma through an efficient reward and motivation system. Furthermore, the senior management of banking institutions should concentrate on the achievement of competitive advantage and competitive position through providing high-quality services.

3. The researcher suggests that banking institutions should consider the feedback of employees and observe the bank`s performance on a continuous basis, using both financial and nonfinancial indicators and measures to improve the quality of their performance. Furthermore, banking institutions should seek information from different sources to evaluate and assess the quality of banking services and enhance CSR with customers. Besides, adopt and follow an open-door policy with employees and encourage innovative behavior in banking institutions.
4. The banking institutions in Palestine ought to involve and invest in continuous development and constant improvement. Continuous development and continuous quality excellence are two of the critical success pillars of Six Sigma implementation and require the support and commitment of senior executive management. Thus, the researcher suggests that banking institutions should implement the principle of quality excellence. Furthermore, it is interesting to invest continuously in human resource development and training to develop the competencies, skills, and knowledge of the employees and participate in their decision-making. Besides, there is an interest in preparing quality management reports to correct any deviations that may arise in business development.

5. Human resources are the most essential pillar and cornerstone for the implementation of any quality improvement strategy or program. Thus, the senior management of banking institutions should be interested in achieving employee`s satisfaction and loyalty by encouraging their involvement and participation in decision-making, being involved in employees` empowerment, improving the competencies and skills of the human resources, increasing employees` commitment through setting a clear and subjective employee performance management and appraisal system, and rewarding and motivating employees. These are important issues to influence employees` performance. Besides, there should be clear selection and hiring policies to attract highly qualified candidates.
6. The banking institutions should invest in the development and acquisition of information technology and the required technological instruments, as this helps the use and implementation of six-sigma in banking institutions in Palestine. Besides, they have to acquire interesting programs to analyze data to help management in decision-making. Besides, enhancing the processes by reducing the number of steps required to provide the service and increasing interest in procedure simplification will benefit both employees and customer.
7. The researcher suggests there is a necessity to invest in enhancing the efficiency and effectiveness of communication in banking institutions through setting clear lines of directions and communication among the different levels of management and departments in banking institutions. Moreover, senior management and supervisors should adopt an open-door policy with employees and identify their needs and requirements on a continuous basis. Furthermore, enhance both formal

and informal communication among employees. Also, the banking institutions should enhance and support the relationship with current and potential customers.

8. The researcher suggests that Palestine Monetary Authority should encourage incorporation of Six Sigma methodologies into the regulatory framework governing the Palestinian banking sector.
9. Palestine Monetary Authority should develop and implement policies that encourage training and capacity building programs for banking professionals. These initiatives should focus on equipping staff with the necessary skills and knowledge to effectively implement Six Sigma methodologies, fostering a culture of continuous improvement
10. Palestine Monetary Authority should implement a robust monitoring and evaluation framework at the policy level to assess the effectiveness of Six Sigma initiatives within the banking sector.
11. Palestine Monetary Authority should foster collaboration between banking institutions and educational entities to integrate Six Sigma principles into relevant academic curricula. This collaborative effort will contribute to a pipeline of skilled professionals entering the workforce with a strong foundation in quality management practices.
12. The researcher suggests that banking institutions in Palestine should promote and introduce Fintech, a cutting-edge financial technology that aims to enhance and automate the delivery and utilization of financial services. Embracing Fintech can significantly improve efficiency, accessibility, and overall user experience in the financial sector. By incorporating innovative solutions, organizations can stay at the forefront of technological advancements and better meet the evolving needs of

their clients. Fintech's transformative capabilities have the potential to revolutionize the way financial services are delivered, making it a valuable and strategic initiative for any forward-thinking institution promoting

5.7 Limitations

The findings of this study depend on the attitudes and perceptions of the banking institutions in Palestine, which have diverse education levels, experience, and different positions from both Islamic banks and convenient banks, as well as from Palestinian local banks and foreign banks. Thus, special emphasis ought to be taken into consideration when making generalizations of the findings.

This study is limited to banking sector employees and managers in the West Bank only, and the researcher excluded banking employees and managers in the Gaza Strip due to the Israeli war against Palestinians and the closure and emergency state of banking institutions.

The researcher in this study followed the quantitative research approach, and as it’s known, this research approach does not provide an explanation or detailed information regarding the attitudes and responses of the studied sample.

5.8 Suggestions for Future Research

The study investigated the effect of six-sigma implementation on the quality of banking institutions based on the perceptions and views of banking institution employees. Thus, the researcher suggests further studies that involve evaluating and assessing the banking services from the perspective of customers. Furthermore, the researcher suggests further studies using the mixed research approach through the

questionnaire and interview design to get more detailed information and explanation from the senior management. The researcher also suggests implementing this study in other economic sectors, such as the insurance sector and the service sector, to develop the quality of services offered to customers. Another interesting study is the impact of the six-sigma approach on corporate sustainability in the banking sector. Eventually, the effect of digital transformation on the implementation of six-sigma in banking institutions.

References

Abdullah, A. And Patrick, M. (2016) Organizational Culture That Inhibit the Lean Implementation. *The European Business & Management Conference*. Official Conference Proceedings.

Abu Loum O. (2015). The Extent of Compliance with Six Sigma Methodology in Controlling Internal Auditing Quality in Jordanian Commercial Banks. Unpublished thesis. Yarmouk University.

Abu Nahia, J. (2013). The Extent of the Use of Six Sigma in Curriculum Standards to Achieve Internal Audit Quality: A Case Study of Palestinian Universities in the Gaza Strip, Unpublished Master Thesis, the Islamic University of Gaza, Accounting and Finance Department.

Aditya, G. M., & Irawan, H. (2020). Application of the Six Sigma Method as a Tool for Management to Improve Quality of Services (Case Study on Bank Bni Syariah Bandung). Eproceedings of Management, 7(1). 7-25.

Adrian Pugna, Romeo Negrea, Serban Miclea(2016), Using Six Sigma Methodology to Improve the Assembly Process in an Automotive Company, *Procedia - Social and Behavioral Sciences*, 221, 308-316.

Ahmad, M. F., Zainudin, M. H. H., Hamid, N. A., Ahmad, A. N. A., Rahman, N. A. A., & Nawi, M. N. M. (2019). Critical Success Factors of Lean Six Sigma and its Relation on Operational Performance of SMEs Manufacturing Companies: A

Survey Result. *International Journal of Supply Chain Management*, *8*(1), 64-69.

Ahmed, A. (2017). Six Sigma Evaluation Using Process Capability And-X Control Chart for Reducing Variance in Oil Density Characteristic: A Study in Yemen. *International Journal of Quality Engineering and Technology*, *6*(3), 186-209.

Ajeel, N. (2021), The Influence of the Net Six Sigma Correlation and Green Production in Supporting the Sustainable Performance: (A Case Study of Sama Fayhaa for Pharmaceutical Industries Co.), South Technical University, Administrative Technical College / Basra. Master Thesis.

Akbulut Y. (2018). The Impact of Six Sigma Approach on the Competitive Advantage in The Telecommunication Companies in Jordan, Master Thesis, The University of Jordan.

Al Asas B. (2014), Implementing Six Sigma Methodology in the Syrian Pharmaceutical Companies a Case Study: Orient Pharma, Syrian Arab Republic, Master of Quality Management, Syria.

Al Harbi, M., Al Sadiri, F. (2018). The Application of Six Sigma Methodology Standards to improve the Quality of Internal Auditing in the Commercial Banks of KSA – A Pilot Field Study.

Al Hindawi, M (2016), The Role of the Use of Six Sigma in Maintaining the Goals of the Management of Strategic Cost (Applied Study) – University of Halab, Master Thesis.

Al Nahdir, S. (2017). In the Major Companies of Producing Food Stuffs, Six Sigma, The Possibility to Apply Six Sigma Methodology in West Bank, Al Khaleel University, Master Thesis.

Al Nathar S. (2017). The Extend of Application at Six Sigma Methodology in Major Food Stuff Manufacturing Companies in West Bank. Master Thesis, Hebron University.

Al-Abdallah, G. M., & Lic, C. V. (2020). Barriers to Six Sigma Implementation in Chinese Small and Medium Steel Enterprises. *International Journal of Business Excellence*, *21*(4), 445-466.

Albliwi, S., Antony, J., Lim, S. A. H., & Van Der Wiele, T. (2014). Critical Failure Factors of Lean Six Sigma: A Systematic Literature Review. *International Journal of Quality & Reliability Management*, *31*(9), 1012-1030.

Alejandrino, J., Magno, D. J. A., Concepcion Ii, R., Lauguico, S., Almero, V. J., Tobias, R. R., ... & Aranas, C. (2020, November). Audit Pattern Optimization in Service Industry Using Six Sigma Methodology. *IEEE Region 10 Conference (TENCON)* (1340-1345).

Alfatlawi, H. A. K., & Alsaedi, W. K. A. (2023). Impact of curriculum standards Six Sigma in improving the quality of banking service: An applied study of a sample of Islamic banks in Iraq. *Revista iberoamericana de psicología del ejercicio y el deporte*, *18*(6), 626-633.

Alkunsol, W. H., Sharabati, A. A. A., Alsalhi, N. A., & El-Tamimi, H. S. (2019). Lean Six Sigma Effect on Jordanian Pharmaceutical Industry's Performance. *International Journal of Lean Six Sigma*, *10*(1), 23-43.

Al-Nazer, Samiha Samih Abdel-Raouf, (2017), The Extent to Which the Six Sigma Approach Can be Applied in Major Food Manufacturing Companies in the West Bank, MBA Thesis, College of Graduate Studies, Hebron University, Palestine

Al-Nuaimi, M. A., & Sweis, R. K. (2008). Sigma Six Accuracy in Quality Management Concepts and Applications. Jordan, Amman: Athraa Publishing and Distribution.

Al-Omari, A. M. (2015). The Impact of Critical Success Factors in the Application of Graceful Hexagonal Diffraction in Service Organizations: Case Studies (Doctoral Thesis, Faculty of Graduate Studies, University of International Islamic Sciences. Jordan).

Al-Qatawneh, L., Abdallah, A. A., & Zalloum, S. S. (2019). Six Sigma Application in Healthcare Logistics: A Framework and A Case Study. *Journal of Healthcare Engineering*, *2019*, 1-12.

Al-Taie, B.F.K., Flayyih, H.H., Talab, H.R. (2017). Measurement of Income Smoothing and its Effect on Accounting Conservatism: An Empirical Study of Listed Companies in The Iraqi Stock Exchange. *International Journal of Economic Perspectives*, 11(3), 710– 719.

Al-Tarawneh, R. M. (2019). The Effect of Using Six Sigma Approach in Improving the Quality of Health Services in the Jordanian Ministry of Health. *International Business Research*, *12*(12), 11-28.

Altork H. (2016). The Impact of Using Six Sigma on the Efficiency of Management of the Working Capital "A Field Study on the Listed Companies at Palestine Stock Exchange", Master of Accounting & Finance, Faculty of Commerce, The Islamic University–Gaza.

Alzabari, S.A.H., Talab, H.R., Flayyih, H.H. (2019). The Effect of Internal Training and Auditing of Auditors on Supply Chain Management: An Empirical Study in Listed Companies of Iraqi Stock Exchange for The Period 2012-2015. *International Journal of Supply Chain Management*, (5), 1070–1075.

Al-Zwaylif, I.M. And Taher, L. (2020) "The Effect of Six Sigma Approach as A Tool for Strategic Cost Management on Achieving Competitive Advantage: The Case of Jordanian Industrial Public Shareholding Companies', *International Journal of Six Sigma and Competitive Advantage*. 12(2), 120-135.

Ambekar, S., & Hudnurkar, M. (2017). Factorial Structure for Six Sigma Project Barriers in Indian Manufacturing and Service Industries. *The TQM Journal*, *29*(5), 744-759.

Antony, J., & Fergusson, C. (2004). Six Sigma in The Software Industry: Results from A Pilot Study. *Managerial Auditing Journal*, *19*(8), 1025-1032.

Antony, J., Rodgers, B., & Gijo, E. V. (2016). Can Lean Six Sigma Make UK Public Sector Organizations More Efficient and Effective? *International Journal of Productivity and Performance Management*, *65*(7), 995-1002.

Antony, J., Sony, M., Dempsey, M., Brennan, A., Farrington, T., & Cudney, E. A. (2019). An Evaluation into the Limitations and Emerging Trends of Six Sigma: An Empirical Study. *The TQM Journal*, *31*(2), 205-221.

Antunes, D., Sousa, S. Nunes, E. (2013). Using Project Six Sigma and Lean Concepts in Internal Logistics, Proceedings of The World Congress on Engineering, 3- 5 London, 1-6.

Anvari, A., & Moghimi, R. (2012). The Strategic Approach to Exploration Review on TQM and Lean Production. *International Journal of Lean Thinking*, *3*(2), 13-26.

Athab, M. K. R., Saleeh, H. H., & Muttar, L. A. (2023). The Application of the Six Sigma Method in Reducing Quality Failure Costs A Case Study in a Diwaniyah Textile Factory. *American Journal of Research in Humanities and Social Sciences*, *12*, 76-103.

Augusto P., & Monteiro M. (2014). Benchmarking Six Sigma Implementation in Services Companies Operating in an Emerging Economy. *Benchmarking: An International Journal*, *21*(1), 62-76.

Awad, N. R., & Jawazneh, B. E. (2012). *The Extent of Six Sigma Implementation in Organizations That Have Been Awarded the King Abdullah II Award for Excellence*. Al Al-Bayt University.

Bakti, C. S., & Kartika, H. (2020). Analysis of Ice Cream Product Quality Control with Six Sigma Method. *Journal of Industrial Engineering & Management Research*, *1*(1b), 63-69.

Bara' R. (2021) "Improving the Bank Account Opening Process Using Lean Six Sigma Methodology at Palestine Islamic Bank-Case Study". *Journal of the Arab American University.* 7(1), 24-51.

Basil, A. (2012) Application of Lean Six Sigma to Optimize Admission Waiting Time at Al-Mowasah Hospital. Unpublished Thesis. Middle East University.

Bell, E., & Bryman, A. (2007). The Ethics of Management Research: An Exploratory Content Analysis. *British Journal of Management*, *18*(1), 63-77.

Bhat, S., Gijo, E. V., Antony, J., & Cross, J. (2023). Strategies for Successful Deployment and Sustainment of Lean Six Sigma in Healthcare Sector in India: A Multi-Level Perspective. *The TQM Journal*, *35*(2), 414-445.

Bhat, S., Antony, J., Maalouf, M., E.V., G. and Salah, S. (2023), "Applications of Six Sigma for Service Quality Enhancement in the UAE: A Multiple Case Study Analysis and Lessons Learned", *International Journal Of Lean Six Sigma*, 37(1), 90-111. https://doi.org/10.1108/IJLSS-06-2022-0144

Brook, Q. (2010). Lean Six Sigma and Minitab: The Complete Toolbox Guide for All Lean Six Sigma Practitioners (3rd Ed.). Hampshire: OPEX Resources.

Chakraborty, A., & Leyer, M. (2013). Developing A Six Sigma Framework: Perspectives from Financial Service Companies. *International Journal of Quality & Reliability Management*, *30*(3), 256-279.

Cherrafi, A., S. Elfezazi, A., Mokhlis A., and Benhida K. (2016). The Integration of Lean Manufacturing, Six Sigma and Sustainability: A Literature Review and Future Research Directions for Developing a Specific Model. Journal of Cleaner Production 139:828–46.

Council for Six Sigma (2018) Lean Six Sigma Green Belt Certificate. Living, Harmony LLC.

Creswell, J. W., & Creswell, J. D. (2017). *Research Design: Qualitative, Quantitative, And Mixed Methods Approach*. Sage Publications.

Deniz et al. (2017). "The Perspectives of Banking and Health Sector Administrators Regarding the Six Sigma Approach". *Management Science Letters*, 7(5), 241-246.

Desale, S.V.; And Deodhar, S.V (March 2014). “Identification and Eliminating Waste in Construction by Using Lean and Six Sigma Principles”. *International Journal of Innovative Research in Science, Engineering and Technology,* 3(4), 285-296.

Dey, S. (2014). *Transforming Washington Dc's Parking Meter Program Using Lean Six Sigma Based Asset Management* (No. 14-3302).

Dominic, C., Okwu, M., Tartibu, L., & Enarevba, D. (2021). Systematic Literature Review of Six Sigma Philosophy in Manufacturing Operations. In *Proceedings of the International Conference on Industrial Engineering and Operations Management Sao Paulo, Brazil*.

Firka, D., (2010). Six Sigma: An Evolutionary Analysis Through Case Studies, *TQM Journal*, 22 (4), Pp. 423-434.

García-Alcaraz, J. L., Alor-Hernández, G., Sánchez-Ramírez, C., Jiménez-Macías, E., Blanco-Fernández, J., & Latorre-Biel, J. I. (2018). Mediating Role of the Six Sigma Implementation Strategy and Investment in Human Resources in Economic Success and Sustainability. *Sustainability*, *10*(6), 1828-1850.

Garza-Reyes, J. A. (2015). Lean and Green – A Systematic Review of the State-of-the-Art Literature. *Journal of Cleaner Production* 102:18–29.

Gulbake, P., & Panga, M. (2023). Exploring Six Sigma Practices, Critical Success Factors and Business Performance in the Indian Banking Sector. *European Economic Letters (Eel)*, *13*(3), 1473-1489.

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed, A Silver Bullet. *Journal of Marketing Theory and Practice*, *19*(2), 139-152.

Hanna A. (2015). The Effect of Lean Six Sigma on the Jordanian Pharmaceutical Manufacturing Organizations 'Business Performance, Master Thesis, Middle East

Hussein M. (2023). The Possibility of Applying the Six Sigma Technique in the Accounting Units at the University of Samarra / An Analytical Study of the Opinions of a Sample of Accountants and Auditors. *American Journal of Business Management, Economics and Banking*, 8, 121–135.

Ibrahim, A. M., Hendawy, H. A., Hassan, W. S., Shalaby, A., & El-Sayed, H. M. (2019). Six Sigma Quality Approach for HPLC-UV Method Optimization. *Microchemical Journal*, *144*, 303-308.

Ismyrlis V, Moschidis O (2018) A Theoretical and Statistical Approach of Six Sigma Differentiation from Other Quality Systems. International Journal of Lean Six Sigma 9(1):91–112.

Jeyaraman, K., & Kee Teo, L. (2010). A Conceptual Framework for Critical Success Factors of Lean Six Sigma: Implementation on the Performance of Electronic

Manufacturing Service Industry. *International Journal of Lean Six Sigma*, *1*(3), 191-215.

Kartika, H., Norita, D., Triana, N. E., Roswandi, I., Rahim, A., Naro, A., ... & Bakti, C. S. (2020). Six Sigma Benefit for Indonesian Pharmaceutical Industries Performance: A Quantitative Methods Approach. *Systematic Reviews in Pharmacy*, *11*(9), 466-473.

Khalaf, B. A. Salih, M. A., Mahmoud, A. H., (2020). The Application of Six Sigma-Supported Expert System in Construction Projects. In *LOP Conference Series: Materials Science and Engineering.* 881(1), 1-17.

Khalil H. (2018). The Extent to Which Six Sigma Concepts Can be applied in Evaluating and Improving the Level of Performance. *Journal of Kufa Studies Center*, *1*(49). 239-268.

Kowalik, K. (2018). Six Sigma as a Method of Improving the Quality-of-Service Process. *Production Engineering Archives*, *19*(19), 10-15.

Kumar, D., & Kaushish, D. (2015). Scrap Reduction in a Piston Manufacturing Industry: An Analysis Using Six Sigma and DMAIC Methodology. *IUP Journal of Operations Management*, *14*(2). 7-24.

Kumar, P., Khan, M. A., Mughal, U. K., & Kumar, S. (2020). Exploring the Potential of Six Sigma (DMAIC) in Minimizing the Production Defects. In Proceedings of

the International Conference on Industrial and Mechanical Engineering and Operations Management Dhaka, Bangladesh.

Kumar, U.D., Nowicki, D., Ramírez-Márquez, J.E., Verma, D. (2008), On the Optimal Selection of Process Alternatives in A Six Sigma Implementation, *International Journal of Production Economics*, 111 (2), 456-467.

Laureani, A., & Antony, J. (2012). Critical Success Factors for the Effective Implementation of Lean Sigma: Results from an Empirical Study and Agenda for Future Research. *International Journal of Lean Six Sigma*, *3*(4), 274-283.

Laureani, A., & Antony, J. (2018). Leadership–A Critical Success Factor for the Effective Implementation of Lean Six Sigma. *Total Quality Management & Business Excellence*, *29*(5-6), 502-523.

Laureani, A., & Antony, J. (2019). Leadership and Lean Six Sigma: A Systematic Literature Review. *Total Quality Management & Business Excellence*, *30*(1-2), 53-81.

Leyer, Michael & Chakraborty, Ayon (2011) Implementing A Six Sigma Initiative in Financial Service Companies. In Proceedings of the 2011 IEEE ICQR, IEEE, Chaophya Park Hotel, Bangkok, 521-525.

Lodgaard, E., Ingvaldsen, J. A., Gamme, I., & Aschehoug, S. (2016). Barriers to Lean Implementation: Perceptions of Top Managers, Middle Managers and Workers. *Procedia CIRP*, *57*, 595-600.

Lucas, J. M. (2002). The Essential Six Sigma. *Quality Progress*, *35*(1), 27-31.

Marcoulides, G. A. (Ed.). (1998). *Modern Methods for Business Research*. Psychology Press.

Marodin, G. A., & Saurin, T. A. (2015). Classification and Relationships between Risks that Affect Lean Production Implementation: A Study in Southern Brazil. *Journal of Manufacturing Technology Management*, *26*(1), 57-79.

Mclean, R. S., Antony, J., & Dahlgaard, J. J. (2017). Failure of Continuous Improvement Initiatives in Manufacturing Environments: A Systematic Review of the Evidence. *Total Quality Management & Business Excellence*, *28*(3-4), 219-237.

Melhem, Y. S. (2014). 6 Sigma from A Qualitative Perspective. Jordan, Amman: Wael Publishing.

Mesut, Ü. L. E. N., & GÜLMEZ, M. (2020). Six Sigma Approach to Improve Service Quality and A Practice Study in Hospitality Sector. *Business & Management Studies: An International Journal*, *8*(3), 3150-3182.

Mezouari, S., Bouaouda, Z., & Drissi, H. (2013). Lean Six Sigma in Africa: Fad or Real Solution of Competitiveness. *International Journal of Management & Information Technology*, *6*(3), 861-866.

Mustafa, Z., & Jamaluddin, Z. (2017, April). Six Sigma Critical Success Factors in Manufacturing Industries. In *AIP Conference Proceedings.* 830(1).

Nasar, A. (2018), The Use of Six Sigma Methodology to Improve Patients' Satisfaction Hospitalized in the Governmental Hospitals in Gaza Sector, Master Thesis.

Nayeri, M. D., & Rostami, M. (2016). Effectiveness of Six Sigma Methodology through BSC in Banking Industry. *Journal of Asian Business Strategy*, *6*(1), 13-21.

Nnabuife, E. (2021). Six Sigma Manufacturing and Performance of Brewing Firms in South-South, Nigeria. *European Journal of Business and Innovation Research*, *9*(4), 41-55.

Noori B. And Latifi M., (2017) "Development of Six Sigma Methodology to Improve Grinding Processes: A Change Management Approach," *International Journal of Lean Six Sigma*, 9(1), 50–63, 2017.

Noori, B. & Latifi, M. (2018). Development of Six Sigma Methodology to Improve Grinding Processes: A Change Management Approach. *International Journal of Team Six Sigma,* 9(1), 50-63.

Noviantoro, R., Maskuroh. N., Santoso. B., Abdi. M. N., Fahlev. M., Pramono. R., Purwanto. A., Purba. J. T., Munthe. A. P. & Juliana. (2020) Did Quality Management System ISO 9001 Version 2015 Influence Business Performance? Evidence from Indonesian Hospitals. *Systematic Reviews in Pharmacy*, 11 (8), 499-507.

Pakdil, F. (2020). Six Sigma for Students. Springer Books.

Pakdil, F., & Leonard, K. M. (2015). The Effect of Organizational Culture on Implementing and Sustaining Lean Processes. *Journal of Manufacturing Technology Management*, *26*(5), 725-743.

Pande, P. S., Neuman, R. P., & Cavanagh, R. R. (2014). *The Six Sigma Way* (299-308). Gabler.

Pandey, P., & Pandey, M. M. (2021). *Research methodology tools and techniques*. Bridge Center.

Pie-Shih, H. S. (2006). *The Effect of Six Sigma Implementation Practices on Business Performance* (Doctoral Dissertation, Master Thesis from Department of Business Administration, University of Tatung, Taipei).

Psychogios, A. G., Atanasovski, J., & Tsironis, L. K. (2012). Lean Six Sigma in A Service Context: A Multi-Factor Application Approach in the Telecommunications Industry. *International Journal of Quality & Reliability Management*, *29*(1), 122-139.

Raghunath, A., & Jayathirtha, R. V. (2013). Barriers for Implementation of Six Sigma by Small and Medium Enterprises. *International Journal of Advancements in Research & Technology*, *2*(2), 1-7.

Rajasekar, D., & Verma, R. (2013). *Research Methodology*. Archers & Elevators Publishing House.

Ramadan, M.A., Al Dhaheri, M.K., Maalouf, M., Antony, J., Bhat, S. and Gijo, E.V. (2023), "Application of Six Sigma Methodology to Enhance the Productivity and Performance of a Hotel in the UAE", *The TQM Journal*, 35(2), 554-576.

Rudyanto, R., Soemarni, L., Pramono, R., & Purwanto, A. (2020). The Influence of Antecedents of Supply Chain Integration on Company Performance. *Uncertain Supply Chain Management*, *8*(4), 865-874

Rumane A.R. (2019). Quality Management in Construction Projects, 2nd Edition. CRC Press. 578 P.

Salaheldin, S. I., & Abdelwahab, I. S. (2009). Six Sigma Practices in the Banking Sector in Qatar. *Global Business and Management Research: An International Journal*, *1*(1), 23-35.

Samarrokhi, A & Jenab, K & Weinsier, P. (2015). The Effects of Lean Production and Six Sigma on Sustainable Competitive Advantage with Moderation of Suitable Resources. *International Journal of Services and Operations Management*. 21. 112. 10.1504.

Saunders, M., Lewis, P. & Thornhill, A. (2012). Research Methods for Business Students. 6th Edition, Pearson Education Limited.

Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research Methods for Business Students*. Pearson Education

Sekaran, U. (2006). Business Research Methodology.

Sekaran, U., & Bougie, R. (2010). Research Methods for Business: A Skill Building Approach (5th Edition). New Jersey: John Wiley and Sons.

Senger, Ö., & Cengiz, Ö. (2018). Implementation Six Sigma of Service Industry: A Case of Tourism Industry. *Alphanumeric Journal*, *6*(1), 151-176.

Shafei, I., & Tabaa, H. (2016). Factors Affecting Customer Loyalty for Mobile Telecommunication Industry. *Euromed Journal of Business,* 11(3), 347–361.

Sharma, S., & Chetiya, A. R. (2012). An Analysis of Critical Success Factors for Six Sigma Implementation. *Asian Journal on Quality*, *13*(3), 294-308.

Singh, M., Kumar, P., & Rathi, R. (2019). Modelling the Barriers of Lean Six Sigma for Indian Micro-Small Medium Enterprises: An Ism and Micmac Approach. *The TQM Journal*, *31*(5), 673-695.

Sinha, A. A., Rajendran, S., Nazareth, R. P., Lee, W., & Ullah, S. (2020). Improving the Service Quality of Telecommunication Companies Using Online Customer and Employee Review Analysis. *Quality Management Journal*, *27*(4), 182-199.

Smolenceva, A., & Miftakhutdinova, F. (2019, October). Applying The Six Sigma Methodology. In *IOP Conference Series: Materials Science and Engineering*. 666(1), 1-9.

Snee, R. D. (2004). Six–Sigma: The Evolution of 100 Years of Business Improvement Methodology. *International Journal of Six Sigma and Competitive Advantage, 1*(1), 4-20.

Sony, M., Naik, S., & Therisa, K. K. (2019). Why Do Organizations Discontinue Lean Six Sigma Initiatives? *International Journal of Quality & Reliability Management*, *36*(3), 420-436.

Sreedharan V, R., & Sunder M, V. (2018). Critical Success Factors of TQM, Six Sigma, Lean and Lean Six Sigma: A Literature Review and Key Findings. *Benchmarking: An International Journal*, *25*(9), 3479-3504.

Sreedharan V, R., Raju, R., Sunder M, V., & Antony, J. (2019). Assessment of Lean Six Sigma Readiness (LESIRE) for Manufacturing Industries Using Fuzzy Logic. *International Journal of Quality & Reliability Management*, *36*(2), 137-161.

Srinivas, S. S., & Sreedharan, V. R. (2018). Failure Analysis of Automobile Spares in A Manufacturing Supply Chain Distribution Centre Using Six Sigma DMAIC Framework. *International Journal of Services and Operations Management*, *29*(3), 359-372.

Suleiman N. Abdullah, A. (2022), Priorities for the Application of Training Programs for Six-Sigma Belts Methodology (Six Sigma), An Analytical Study of a Sample of Administrative Leaders in the Light Industries Company, Ishtar, *Business Economics Journal of Applied Research*, 3(2), 346-361.

Sunder M., V., Ganesh, L.S. and Marathe, R.R. (2019), "Lean Six Sigma in Consumer Banking – An Empirical Inquiry", *International Journal of Quality & Reliability Management*, 36(8), 1345-1369.

Sutia, S., Riadi. R., Fahlevi. M., Istan. M., Juhara. S., Pramono. R., Purwanto. A., Purba. J. T., Munthe. A. P. & Juliana. (2020) Benefit of Benchmarking Methods in Several Industries: A Systematic Literature Review. *Systematic Reviews in Pharmacy*, 11 (8), 508-518.

Talab, H. R., Maki, M. I., Mohammed, Y. N., Flayyih, H. H., & Ibrahim, A. M. (2019). The Role of E-Government on Corruption and its Impact on the Financial Performance of the Government: An Empirical Analysis on the Iraqi Government. *Journal of Engineering and Applied Sciences*, 14(4), 1349-1356.

Tawfik, A. R. (2008). 6 Sigma and The Matrix of Balanced Performance for Those Who Seek Optimal Performance. Egypt, Giza: Center of Professional Expertise for Management

Thakur, V., Akerele, O. A., & Randell, E. (2023). Lean and Six Sigma as Continuous Quality Improvement Frameworks in the Clinical Diagnostic Laboratory. *Critical Reviews in Clinical Laboratory Sciences*, *60*(1), 63-81.

Tsironis, L. K., & Psychogios, A. G. (2016). Road Towards Lean Six Sigma in Service Industry: A Multi-Factor Integrated Framework. *Business Process Management Journal*, *22*(4), 812-834.

Ullah, F., Thaheem, M. J., Siddiqui, S. Q., & Khurshid, M. B. (2017). Influence of Six Sigma on Project Success in Construction Industry of Pakistan. *The TQM Journal*, *29*(2), 276-309.

Ulmer, J. M. (2008). *A Study of ASQ and SME Members on the Effects of Continuous Improvement Practices and Certifications on Quality Cost for Small-to-Midsized United States Manufacturing Companies*. Indiana State University.

Wahyuningsih, E., Azizah, S. A., Firdaus, M. I., & Siregar, S. R. (2021). The Analysis of Delivery Service Quality Using Six Sigma and SERVQUAL Methods in Improving Customer Satisfaction. *Advances in Transportation and Logistics Research*, *4*, 1140-1151.

Warth, B., Rahman, A., & Jabah, A. (2016). The Role of Productive Institutions in the Application of Lean Management: An Empirical Study on Algerian Pharmaceutical Establishments. *BAJI Mokhtar Annaba University, Algeria, Journal of Economic Sciences*, *17*(2).

Wuyts, S., Rindfleisch, A & Citrin, A. (2015). Outsourcing Customer Support, The Role of Provider Customer Focus, *Journal of Operations Management* 35, 40-55.

Yadav, N., Shankar, R., & Singh, S. P. (2021). Hierarchy of Critical Success Factors (CSF) for Lean Six Sigma (LSS) In Quality 4.0. *International Journal of Global Business and Competitiveness*, *16*(1), 1-14.

Yassin, M. M. (2017). The Determinants of Internet Financial Reporting in Jordan: Financial Versus Corporate Governance. *International Journal of Business Information Systems*, *25*(4), 526-556.

Zhong, W. (2017). The Integration of Process Mining and Lean Six Sigma. *Quality & Reliability, (Tilburg University)*, *27*(2), 138-155.

Zhuo, Z. (2019). Research on Using Six Sigma Management to Improve Bank Customer Satisfaction. *International Journal of Quality Innovation*, *5*(1), 3. 1-14.

Zirmi N. Saidani W. (2022). The Effect of Using the Six-Sigma Methodology on Improving the Performance of Algerian Commercial Banks: Sample Study of Some Banks Operating in Bechar". *Al Bashaer Economic Journal*. 8(2), 197-216.

Appendix (1): Questionnaire of the study

استبيان بحث أكاديمي

الجامعة العربية الامريكية

السادة الاعزاء،

يهدف هذا البحث الى دراسة العلاقة بين أثر تطبيق منهجية ستة سيجما في تحسين جودة الخدمات المصرفية في البنوك الفلسطينية، وذلك كبحث أكاديمي لنيل درجة الماجستير في إدارة الجودة من الجامعة العربية الامريكية.

وتعرف ستة سيجما (Six Sigma) بأنها" احدى الاساليب الادارية الحديثة التي تهدف الى التحسين المستمر داخل المؤسسات وذلك من خلال تقليل التباين والأخطاء".

إن كافة المعلومات التي سيتم الحصول عليها سوف تعامل بسرية تامة وسينحصر استخدامها لأغراض البحث العلمي.

نشكر اهتمامكم ونقدر الوقت الذي منحتمونا اياه لتعبئة هذا الاستبيان، ستساعد نتائج هذه الدراسة وتوصياتها البنوك العاملة في فلسطين وسيساهم تعاونكم معنا في تعزيز البحث العلمي في فلسطين.

ربى عزام

القسم الاول: يحتوي على البيانات الشخصية والوظيفية:

(ارجو وضع رقم الاجابة في الخانة التي ترونها مناسبة لكم)

القسم الاول: بيانات عامة

1. العمر:	☐ اقل من 30 عام	☐ 39-30	☐ 50-40	☐ أكثر من 50
2. الجنس:	☐ ذكر		☐ انثى	
3. الحالة الاجتماعية:	☐ متزوج		☐ أعزب	
4. المستوى التعليمي:	☐ توجيهي	☐ دبلوم	☐ بكالوريوس	☐ ماجستير ☐ دكتوراه
5. المسمى الوظيفي:	☐ مدير	☐ مساعد مدير	☐ رئيس قسم	☐ موظف
6. سنوات الخبرة:	☐ اقل من 5 سنوات	☐ 5 – 10 سنوات	☐ أكثر من 10 سنوات	
7. جنسية البنك الذي تعمل فيه	☐ بنك محلي فلسطيني		☐ بنك وافد	
8. طبيعة عمل البنك	☐ بنك إسلامي		☐ بنك تقليدي	

القسم الثاني: محاور الدراسة

فيما يلي محاور الدراسة المتمثلة في أثر استخدام منهجية ستة سيجما على جودة الخدمات المصرفية في البنوك الفلسطينية، الرجاء وضع إشارة (x) في المربع الذي يعبر (من وجهة نظرك) عن مدى موافقتك على كل عبارة من العبارات المدرجة أدناه.

المتغير الاول: ستة سيجما						
	الفقرات	**موافق بشدة**	**موافق**	**محايد**	**غير موافق**	**غير موافق بشدة**
البعد الاول: المسؤولية الإدارية (دعم الإدارة العليا)						
1.	لدى إدارة البنك الإمكانيات المالية لاستخدام تطبيقات الجودة والتميز					

.2	لدى إدارة البنك الاستعداد والحماسة لاستخدام مضامين الجودة والتميز					
.3	إدارة البنك لديها الاستعداد لاستخدام أساليب معاصرة في مجال الجودة والتميز					
.4	إدارة البنك لديها الاستعداد لتوفير التسهيلات والوقت لاستخدام تطبيقات الجودة والتميز					
.5	تعزز إدارة البنك موقعها التنافسي بين البنوك من خلال تركيزها على تقديم الخدمات المصرفية بجودة عالية					
.6	يخصص البنك جزء من موارده لتطوير الجودة من خلال استخدام أفضل المنهجيات مثل الستة سيجما					
.7	تركز رسالة البنك على تطوير نظام الجودة					
.8	تشجع إدارة البنك الأفكار الإبداعية وتتبناها					
.9	تسعى الإدارة لزيادة التنافس بين الموظفين من خلال إعلانها عن المكافآت الممنوحة للمتميزين في البنك					
.10	تمنح إدارة البنك مكافآت جماعية لموظفي البنك المتميزين					

الفقرات		موافق بشدة	موافق	محايد	غير موافق	غير موافق بشدة
البعد الثاني: التغذية العكسية						
.1	تقوم إدارة البنك بقياس أداء كافة مراكز العمل في البنك					
.2	تعتمد إدارة البنك على المؤشرات المالية لقياس ومراقبة نتائج اعتماد تقييم الأداء وفقاً للمعايير الموضوعة.					
.3	تعتمد إدارة البنك على المؤشرات غير المالية لقياس ومراقبة نتائج اعتماد تقييم الأداء وفقاً للمعايير الموضوعة.					

.4	تعتمد إدارة البنك على أساليب متعددة في الحصول على المعلومات اللازمة لتخطيط فعاليتها فيما يتعلق بتقديم الخدمات المصرفية					
.5	تساهم أساليب القياس المعتمدة في البنك بتحسين الأداء الكلي					
.6	يقوم البنك بإعداد تقارير تفصيلية عن الأنشطة التي يقدمها بشكل دوري					
.7	يحرص البنك على معرفة رأي عملاؤه في الخدمات المقدمة					
.8	يتوفر لدى البنك طاقم مؤهل لمعرفة ودراسة كل ما يتعلق بالتغذية العكسية					
.9	يوجد برامج تساعد الإدارة على تقييم أداء الوحدة بشكل مستمر					
.10	أهداف الوحدة التنظيمية تتلاءم مع البيئة الموجودة فيها					

	الفقرات	موافق بشدة	موافق	محايد	غير موافق	غير موافق بشدة
البعد الثالث: التحسين المستمر						
1	يساعد تطبيق مضامين الجودة والتميز في البنك بتحسين جودة الخدمات المصرفية المقدمة للعملاء					
2	تحرص إدارة البنك على تقديم خدمات ومنتجات مصرفية منافسة في القطاع المصرفي					
3	تحرص إدارة البنك على تدريب وتنمية الموارد البشرية بصورة مستمرة					
4	تحرص إدارة البنك على اشراك كافة الموظفين باتخاذ القرارات التي تتعلق بتحسين جودة الخدمات المصرفية بصورة مستمرة					
5	تحرص إدارة البنك على إعداد تقارير الجودة وتصحيح أية انحرافات أو أخطاء بصورة مستمرة					

6	تحرص إدارة البنك على اعداد دراسات لاستطلاع أراء العملاء حول جودة الخدمات المصرفية التي يقدمها البنك					

	الفقرات	موافق بشدة	موافق	محايد	غير موافق	غير موافق بشدة
البعد الرابع: الموارد البشرية						
1	إدارة البنك لديها الاستعداد لربط مكافآت الإدارة العليا بنجاح تطبيق مضامين الجودة والتميز					
2	إدارة البنك لديها الاستعداد لربط الترقيات في البنك ببرامج الجودة والتميز					
3	إدارة البنك لديها الاستعداد لتحفيز العاملين لاستخدام تطبيقات الجودة والتميز					
4	إدارة البنك لديها الاستعداد على تعيين خبراء واستشاريين بتطبيقات الجودة والتميز					
5	يتوفر لدى البنك موازنة سنوية كافية مخصصة للتدريب					
6	يوجد في البنك خطة سنوية لتحديد الاحتياجات التدريبية					
7	تهدف برامج التدريب إلى منع وقوع الأخطاء بغية تقديم أعلى مستوى من الخدمة					
8	تهدف برامج التدريب لإعداد كوادر متخصصة تنافس كوادر المصارف الأخرى					

	الفقرات	موافق بشدة	موافق	محايد	غير موافق	غير موافق بشدة
البعد الخامس: العمليات والانظمة						
1	إدارة البنك لديها الاستعداد لتوفير نظام تبادل المعلومات وتدقيقها بين تطبيقات الجودة والتميز					

.2	إدارة البنك لديها الاستعداد لاستخدام برامج للمساعدة في اختيار ومفاضلة بين برامج الجودة والتميز					
.3	إدارة البنك لديه الاستعداد لتوفير نظام اتصال مباشر بمدربي الجودة والتميز					
.4	يتوفر لدى إدارة البنك أساليب لتحليل الأنشطة اللازمة لتقديم الخدمة					
.5	يعتمد البنك برنامجاً لتبسيط الإجراءات وتقليل عدد الخطوات المتبعة لتقديم الخدمة					
.6	يمتلك البنك أساليب تقييم متطورة تمكن من الحكم على متانة المركز المالي للمقترض					
.7	يستخدم البنك قواعد بيانات ومعلومات إدارية تسهل خدمة العملاء					
.8	توفر إدارة البنك كافة المستلزمات والأدوات اللازمة لدى الموظف لإنجاز مهامه					

	الفقرات	موافق بشدة	موافق	محايد	غير موافق	غير موافق بشدة
البعد السادس: الاتصال						
.1	تتبنى إدارة البنك سياسة الباب المفتوح مع الموظفين					
.2	يستطيع الموظف الوصول لأصحاب القرار في البنك لشرح مواقفهم بدون صعوبة					
.3	تتميز التعليمات العامة بالبنك بالوضوح والدقة					
.4	توجد وسائل اتصال فعالة مباشرة بين الموظف والعملاء					
.5	تسعى الإدارة في البنك وبشكل مستمر على تذليل العقبات والتعقيدات في خدمة العملاء باستخدام قنوات اتصال متعددة.					
.6	يوجد لدى البنك هيكل تنظيمي واضح ومحدد					

.7	يتسم القرار الإداري في البنك بالمرونة من قبل المستويات الإدارية المختلفة					

المتغير الثاني: جودة الخدمات المصرفية						
	الفقرات	موافق بشدة	موافق	محايد	غير موافق	غير موافق بشدة
البعد الاول: الملموسية						
.1	يقدم البنك الذي تعمل به العديد من الخدمات المصرفية المتميزة					
.2	يعتبر المظهر العام للبنك الذي تعمل به بالجاذبية					
.3	تتمتع مراكز العمل الخاصة بالبنك بالقرب من كافة العملاء					
.4	يوفر البنك الخدمات الالكترونية المتميزة للعملاء					
.5	يتمتع موظفو البنك بمظهر أنيق وحسن					
البعد الثاني: الاعتمادية						
.1	عندما تعد إدارة البنك الذي تعمل به بالقيام بعمل ما في وقت محدد فإنها تلتزم بذلك					
.2	يحرص البنك على متابعة ومعالجة المشكلات والشكاوى التي يتقدم بها العملاء					
.3	يحرص الموظفين على تقديم الخدمة الصحيحة للعملاء من المرة الأولى					
.4	يحتفظ البنك بسجلات دقيقة حول العمليات التي تتعلق بالعملاء					
.5	تسهم الخدمات الالكترونية التي يقدمها البنك بتسهيل حصول العملاء على الخدمات المصرفية المتنوعة					

	الفقرات	موافق بشدة	موافق	محايد	غير موافق	غير موافق بشدة
البعد الثالث: الاستجابة						
.1	تحرص إدارة البنك على توفير العدالة والمساواة التامة بين كافة العملاء دون تمييز					

.2	تحرص إدارة البنك على حل المشكلات التي تواجه العملاء دون تأخير					
.3	يحرص الموظفون على تقديم الخدمات للعملاء بسرعة ودقة					
.4	يتواجد الموظفون في أماكن عملهم بالوقت المناسب					
.5	الموظفون في البنك على أتم الاستعداد لمساعدة العملاء وتقديم الخدمات لهم					
.6	يسهم تلبية الطلبات السريعة للعملاء في تحقيق الميزة التنافسية للبنك					
.7	تقوم إدارة البنك بمتابعة رغبات واحتياجات العملاء بصورة مستمرة					
البعد الرابع: الأمان						
.1	يشعر العملاء بالأمان في تعاملاتهم مع البنك					
.2	الموظفون في البنك أهل للثقة					
.3	يوفر البنك لعملائه وسائل تسهل عملية تعاملهم مع البنك					
.4	يبلغ البنك العملاء بالتطورات التي تطرأ على الاعمال المصرفية داخل المصرف					
.5	يحافظ الموظفون على سرية وخصوصية بيانات العملاء					
البعد الخامس: التعاطف						
.1	يمتلك الموظفين القدرة على التعامل مع العملاء باهتمام شخصي					
.2	تحرص إدارة البنك على التعاطف مع العملاء عند وقوع المشكلات					
.3	لا مكان في البنك الذي أعمل به للواسطة والمحسوبية في التعامل مع قضايا العملاء					
.4	يوفر البنك ساعات عمل ملائمة لظروف العملاء					
.5	يضع البنك مصلحة العملاء في مقدمة اهتماماته					
.6	يعرف العاملون في البنك احتياجات العملاء ويسعون إلى تحقيقها					
.7	يمنح البنك القروض والتسهيلات الائتمانية للعملاء بفوائد وعمولات مناسبة مقارنة بالبنوك الأخرى					

Appendix (2): Questionnaire Revision

List of Academic and Professional Referees:

Serial	Referee	Place of Work
1	**Dr .Ashraf AL- Mimi**	**Arab American University**
2	**Dr. Wasim Sultan**	**Arab American University**
3	**Dr. Mohammad sleimi**	**AL-Quds Open University**

ملخص الدراسة

هدفت هذه الدراسة إلى التعرف على تأثير تطبيق ستة سيجما على جودة الخدمة المصرفية في فلسطين من خلال دراسة تأثير دعم الإدارة العليا والتزامها، والتغذية الراجعة والقياس، والتحسين المستمر، وتوافر الموارد البشرية والعمليات والنظم اللازمة، والاتصالات، واختبار مدى فروق ذات دلالة إحصائية في استجابات أفراد العينة المدروسة نحو أهمية تطبيق ستة سيجما فيما يتعلق بالمستوى الإداري، ومستوى الخبرة، والتحصيل العلمي، والعمر. واتبع الباحث منهج البحث الكمي، وتصميم البحث التفسيري. وقد تم أخذ البيانات من عينة مكونة من (385) مديراً وموظفاً.

أظهرت نتائج الدراسة أن هناك مستوى مرتفع من الاتفاق على وجود متطلبات ستة سيجما في المؤسسات المصرفية في فلسطين، حيث بلغت قيمة المتوسط الحسابي (3.51) ونطاق المتوسط هو (3.33-3.64). وتبين ان اعلى محورين هما: التحسين المستمر بمتوسط حسابي (3.64) ودعم الإدارة بمتوسط حسابي (3.58). كما تبين وجود درجة مرتفعة في المتوسطات الحسابية لتقديرات عينة الدراسة نحو الجودة المدركة للخدمات المصرفية في المؤسسات المصرفية في فلسطين، حيث بلغ المتوسط العام لجودة الخدمة المصرفية المدركة (3.87) ويتراوح مدى المتوسط بين (3.75-4.05). علاوة على ذلك، توجد بشكل عام فروق ذات دلالة إحصائية في اتجاهات ووجهات نظر أفراد العينة المدروسة نحو مدى تطبيق ستة سيجما والجودة المدركة للخدمات المصرفية تعزى للمتغيرات الشخصية والديمغرافية. كما تبين مستوى جيد من الارتباط بين كل بناء لتطبيق ستة سيجما وجودة الخدمات المصرفية. توجد أعلى نسبة ارتباط بين التحسين المستمر وجودة الخدمات المصرفية (0.668)

وبلغت قيمة معامل التحديد (0.568) ومعامل التحديد المعدل هو (0.56). وهذا يعني أن تطبيق ستة سيجما في المؤسسات المصرفية يفسر ما يقارب (56%) من التغير في جودة الخدمات المصرفية. علاوة على ذلك، هناك تأثير إيجابي وكبير للتغذية الراجعة والتحسين المستمر والتواصل على جودة الخدمات المصرفية. ومع ذلك، هناك تأثير إيجابي ولكن غير مهم للدعم الإداري والموارد البشرية والعمليات والأنظمة على جودة الخدمات المصرفية.

توصي الباحثة في ضوء نتائج الدراسة ضرورة قيام المؤسسات المصرفية بتبني وتنفيذ منهجية ستة سيجما كمنهجية واستراتيجية هامة لتطوير وتعزيز جودة الخدمات المصرفية. علاوة على ذلك، يجب على المؤسسات المصرفية تخصيص الموارد والقدرات المالية الكافية لاستخدام

معايير ستة سيجما وغيرها من تطبيقات التميز المثيرة للاهتمام لتطوير جودة الخدمات المصرفية. علاوة على ذلك، يجب على المؤسسات المصرفية متابعة وتقييم ردود أفعال الموظفين وأداء البنك بشكل مستمر، وذلك باستخدام المؤشرات والمقاييس المالية وغير المالية لتحسين جودة أدائها. بالإضافة إلى الاستثمار في تطوير واقتناء تكنولوجيا المعلومات والأدوات التكنولوجية اللازمة، حيث يساعد ذلك على استخدام وتطبيق نظام ستة سيجما في المؤسسات المصرفية في فلسطين.