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Strategic Quality Management in the Single-Terminal Airport

An Investigation with a Focus on the Passenger Operational Processes

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Submitted for the degree of Doctor of Philosophy

to the

National University of Ireland, Galway

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Date Submitted: July 2019
Dedication

To my wife

and

my children
Abstract

Airport management in general, and the management of passenger operations in particular is a complex process, whether in the multi-terminal airport or in the single-terminal airport, although most of the services are provided by different providers. However, airport management seeks to achieve the best performance.

The past few decades have witnessed the transition of the application of quality concepts from the field of manufacturing to the service sector, which has proved successful in the diversified service industries. Therefore, it is possible to adopt strategic quality management practices and tools to be applied to the single-terminal airport.

In an airport, where security, safety and quality of operations are the critical concerns, the scope of strategic quality management ensures that airport management can provide service in accordance with international standards.

Strategic Quality Management (SQM) is concerned with the strategic aspect of the organization, which is usually produced by the complexity of the airport, this complexity often leads to many critical concerns including quality of service, classification issues, standards of passenger service and air freight. Airport management is obliged to be able to address those issues by improving performance and competition in terms of customer focus and continuous improvement.

A new SQM framework was developed in order to find the relationship between the phases of strategic quality management and quality management concepts, along with a focus on the passenger’s service processes through developing best practices of those processes using the Service Blueprint technique to analyze and present passenger service operations.

The proposed framework was developed to manage the complexity of airport operations and it was validated via an expert review process.
Acknowledgement

Firstly, I would like to express my sincere gratitude to my advisors Dr. Pat Donnellan and Mr. Enda Fallon for the continuous support of my PhD study and related research, for their patience, motivation, and immense knowledge. Their guidance helped me in all the time of research and writing of this thesis. I could not have imagined having a better advisors and mentor for my PhD study.

Besides my advisors, I would like to thank the rest of my thesis GRC: Prof. Sean Leen, Dr. Martina Kelly, and Dr. Kathryn Cormican, for their insightful comments and encouragement, but also for the hard question which incented me to widen my research from various perspectives.

My sincere thanks also goes to the airport management who provided me an opportunity to join their teams, and who gave access to the airports. Without they precious support it would not be possible to conduct this research.

Last but not the least, I would like to thank my family: my wife and to my children for supporting me throughout completing this journey and my life in general.
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<td>ACARS</td>
<td>Aircraft Communications Addressing, and Reporting System</td>
</tr>
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<td>ACI</td>
<td>Airport Council International</td>
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<td>ACRP</td>
<td>Airport Cooperative Research Program</td>
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<td>APEX</td>
<td>Airport Excellence</td>
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<tr>
<td>ASQ</td>
<td>Airport Service Quality</td>
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<tr>
<td>ATM</td>
<td>Automated Teller Machine</td>
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<td>CANSO</td>
<td>The Civil Air Navigation Services Organization</td>
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<tr>
<td>CCTV</td>
<td>Closed-circuit television</td>
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<td>CEOs</td>
<td>Chief Executive Officers</td>
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<tr>
<td>CF</td>
<td>Customer Focus</td>
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<td>CI</td>
<td>Continuous Improvement</td>
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<td>CWQC</td>
<td>Company Wide Quality Control</td>
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<td>DAA</td>
<td>Dublin Airport Authority</td>
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<tr>
<td>DMAIC</td>
<td>Define, Measure, Analyze, Improve and Control</td>
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<tr>
<td>DQSP</td>
<td>Design Quality, Speed and Prevention</td>
</tr>
<tr>
<td>ETD</td>
<td>Explosives Trace Detectors</td>
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<tr>
<td>FBM</td>
<td>Fact-Based Management</td>
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<td>FIDs</td>
<td>Flight Information Display system</td>
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<td>IATA</td>
<td>The International Air Transport Association</td>
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<tr>
<td>IBAC</td>
<td>The International Business Aviation Council</td>
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<tr>
<td>ICAO</td>
<td>The International Civil Aviation Organization</td>
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<td>ICAOPA</td>
<td>The International Council Aircraft Owner and Pilot Association</td>
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<td>ICCAIA</td>
<td>The International Coordinating Council of Aerospace Industries Associations</td>
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<tr>
<td>IFALPA</td>
<td>The International Federation of Air Line Pilots' Association</td>
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<td>IFATCA</td>
<td>The International Federation of Air Traffic Controller's Associations</td>
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<tr>
<td>LD</td>
<td>Leadership</td>
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<td>PP&amp;P</td>
<td>People Participation and Partnership</td>
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<td>Abbreviation</td>
<td>Definition</td>
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<tr>
<td>PRM</td>
<td>Persons with Reduced Mobility</td>
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<td>QM</td>
<td>Quality Management</td>
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<tr>
<td>SARPs</td>
<td>Standards and Recommended Practices</td>
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<tr>
<td>SQM</td>
<td>Strategic Quality Management</td>
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<td>SQP</td>
<td>Strategic Quality Planning</td>
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<tr>
<td>SWOT</td>
<td>Strengths, Weaknesses, Opportunities, and Threats</td>
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<tr>
<td>TAM</td>
<td>Total Airport Management</td>
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<td>TSB</td>
<td>Trustee Savings Bank</td>
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Chapter One: Introduction
1.1 Background and Motivation

Airports are not just places where airplanes land and take-off but they are also natural interfaces between ground transport modes and air transport (Classen et al., 2016). Airports have historically been understood as places where aircraft operate, including the runways, control towers, terminals, and other facilities that directly serve aircraft, passengers, and cargo (Boeing Company, 2007). The development of air transport activity worldwide has increased the demand for airport services and the need for more efficient processes of servicing aircraft, passengers or luggage (Papedinskaite and Akstinaite, 2014).

Airports are complex organizations whose efficiency depends on the coordination of operations such as taxiing, gate departures and arrivals. Airport efficiency hinges on elements that airport management is more likely to control (i.e., the choice of runway configuration) than others (i.e., weather) (Diana, 2010). Airport operations constitute a complex interaction of many diverse activities undertaken by different organizations ranging from airlines, air crews, handling agents, engineering support, fuel, catering, and the providers of safety and security services. Many services are provided under contract and no physical links exist between the partners. (Skyway, 2015).

Modern airport management, for the above reasons, requires a more holistic approach to the whole travel chain and aims at a better understanding of airport landside processes and improved resource management. (Classen and Rudolph, 2015).

Libyan airports are still undergoing development. They face various difficulties and challenges, including infrastructure and others related to airport management, especially under unstable conditions. Although Libya has a sufficient number of airports scattered around the country, these airports do not meet the needs and expectations of customers, especially citizens. There is a clear confusion in the management of these airports, most of these airports do not meet the specifications of international airports, and sometimes are not suitable to be local airports. In addition to strategic issues, these airports have
not been able to manage the operations of passengers and air transport efficiently. These problems include the weakness of parking stations, repeated security checks without justification and the low quality of services provided in the airport lounges.

Despite the importance of the airport sector in Libya, very few empirical studies have been conducted in this regard. According to the Africa Competitiveness Report in 2013, Libya was classified with a very low ranking of 129th among 144 countries surveyed about the quality of their air transport infrastructures. Furthermore, in Libya, the air transport sector faces many problems due to the quality of its air transport infrastructure and its available airline seats per km/week. (Eshtaiwi et al., 2017)

Due to the complexity of the airport organization, as noted earlier, modern airport management requires a more holistic approach to implement higher quality through adopting methods that are either aligned with strategy or that are properly co-ordinated with each other. Therefore, effective quality management cannot be practiced in isolation from other initiatives and from the overall strategy of the airport. Therefore, practices of Strategic Quality Management can be useful to address the gap though the formulation and deployment of quality management within the overall framework of strategic planning (Srinidhi, 1998). According to Juran (1999), SQM is a systematic approach to setting and achieving quality objectives throughout a company. The British Standards Institution (BSI)(BS7850-1) (1992) defines it as a management philosophy and company practices that aim to harness the human and material resources of an organization in the most effective way to achieve the objectives of the organization.

This research focuses on two main dimensions where airports need to be studied. The first is how to strategically manage airports, in other words how to develop long-term policies and strategy, and the other is about the problems facing the passengers service operations. This research aims to explore the scientific methods available to address these issues. To achieve this goal, the
researcher adopted the concepts of strategic quality management and its practices in the service sector to form a general framework for solving long-term problems. It also relied on the analysis of passenger operations as the main activity of an airport.

This research is intended to apply SQM practices through developing a new framework to be applied to the Libyan airport sector which is still undergoing development with a focus on passenger operational processes. This research benchmarked the Libyan experience with that of Ireland in order to evaluate the Libyan air transport industry and at the same time identify, from the Irish experience, best practices and success factors that could make Libya a relatively successful nation in air transportation of passengers. Therefore, various strategic and operational factors in the areas of airport management and air transportation of passengers were benchmarked.

1.2 Research Problem Statement
Security, safety and quality are a serious concern for the airport organization, which often leads to the challenges of meeting and fulfilling requirements for accreditation and competition in the airport concerned. Those challenges are airport classification, international standards and competition issues. This research aims to find a solution for these problems facing the airport organization, and because of the limited studies in the literature on the treatment of such problems, the researcher tries to fill the gap by addressing them through the development of a new strategic quality management framework focusing on the passenger as one of the most important actors. It enables airport managers to manage the operations in an integrated manner, strategically as well as linking it to the operational aspect of customer service operations in terms of customer focus and continuous improvement.

1.3 Research Question and Aim
The aim of this research is to develop an understanding of the significance of applying SQM practices in the airport sector. SQM means the way of integrating
quality management concepts in the context of strategic planning with a focus on operational processes. This aim is achieved through answering the following research question "How can the application of practices of Strategic Quality Management (SQM) be developed to assist airport managers and decision-makers in further developing airports?". In order to answer this question the research aims to develop a new strategic quality management framework, specifically, it is intended to be applied for Libyan airports, which they are all single-terminal airports and still undergoing development.

1.4 Research Questions
This research aims to address the following questions:

1- What is the general understanding of the concepts of strategic quality management?

2- What are the key factors which effect passenger service operations?

3- How does the airport evaluate and use evaluation outputs to improve service quality and operations for the passenger?

4- What are the key factors influencing the integration of quality management concepts and strategic planning in an airport?

5- How can a new framework be developed to assist decision-makers in applying best practice methods in strategic quality management in the airport sector?

1.5 Research Objectives
In order to answer the research question the following objectives were identified:

Objective (1) To explore, through a review of the literature, best practice of strategic quality management, in both manufacturing and service sectors, especially in relation to airport operations management.
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**Objective (2)** To determine the key factors influencing passenger operational processes and their relation to the strategic planning of an airport.

**Objective (3)** To determine the factors influencing the passenger service quality using different evaluation methods.

**Objective (4)** To identify the key factors influencing the integration of quality management concepts and strategic planning in an airport.

**Objective (5)** Informed by the results of 1 to 4 above, to develop a new framework to assist decision-makers in applying best practice methods for the development of the strategic quality management in the airport sector.

The above research objectives have been addressed in the research chapters as follows: Objective (1) was addressed in chapters two, three and four, objective (2) was addressed in chapter six, objective (3) was addressed in chapter six, objective (4) was dealt with in chapter six, finally, objective (5) was dealt with in chapter seven.

**1.6 Significance of Research**

The significance of this research comes from the importance of studying the application of strategic quality management concepts in the service sector, especially in the airport sector. Due to the fact that airports in Libya are still undergoing development, therefore, the management of the airport needs to apply such modern concepts arising from the efforts of scientists in this area, especially quality management, not only the traditional quality concepts but the strategic quality that seeks to achieve the most efficiency and effectiveness and the formulation of long-term policies for such sectors. According to the review of literature which indicated that there is very limited studies that concern strategic quality management (SQM), along with a focus on the passenger operational processes, particularly in the airport sector. There is a lack of detailed studies treating quality management for airports. Therefore, the research was conducted to address the gap that arisen in the literature.
1.7 Contribution to Knowledge

According to Phillips and Pugh (2010) based on interviews with PhD students, supervisors and examiners identify six instances in which research can be considered to be original and contribute to knowledge:

- Setting down a major piece of new information in writing for the first time.
- Continuing a previously original piece of work.
- Carrying out original work designed by the supervisor.
- Providing a single original technique, observation or result in an otherwise unoriginal but competent piece of research.
- Having many original ideas, methods and interpretations all performed by others under the direction of the postgraduate.
- Showing originality in testing somebody else’s idea.

For this thesis, there are a number of significant contributions that are expected to be achieved in completing this research as follows:

- This study contributes to knowledge by providing a sophisticated combination of tools and techniques that enables the development of a new framework for analyzing airport passengers operations and identifying factors influencing service quality.
- This research appears to be the first in terms of applying strategic quality management concepts at airports. Such research has not been done before, particularly in an airport.
- This research was an attempt to identify the relationship between the stages of strategic management and quality management concepts from the perspective of airport stakeholders, this attempt seems to be the first in field of an airport within the definition of strategic quality management.
- The final result of this study provided a new framework for applying strategic quality management concepts in the airport sector. In particular, this study contributes to implement a new framework proposed in Libyan
Chapter One: Introduction

airports, which are generally undergoing development. It will be valid to be applied to other airports in different countries taking into account any local or regional changes needed.

- Using known methods, such as **Service Blueprint** but with a new interpretation of the results obtained after the application of those methods to the selected dimensions at the airport.

- Parts of this research have been published on an ongoing basis in conference proceedings and abstracts. The collected data can be published further in journal papers, books, or as book chapters.

1.8 Scope of Research

This research was carried out in three major phases: (1) A benchmarking study of passenger operational processes, (2) A benchmarking study of passenger service quality and (3) A survey-questionnaire for the integration of quality and strategy in the airport sector. The Libyan and Irish airports were chosen to be the scope of the study for this thesis because they represent two different regions dealing with passengers. The two benchmarking studies were conducted in three single-terminal airports; Cork, Shannon and Misurata.

Misurata airport is in Libya, according to the study of (Eshtaiwi et al., 2017) was selected as the best airport among the Libyan airports.

Shannon Airport has received major recognition from the European airline community after being chosen as a winner of the Airport of the Year Award from the European Regions Airline Association (ERA), having secured the prestigious title in 2014 and 2015.

In 2017, Cork airport has been named Airport Council International (ACI) Best Airport in Europe (under 5 million passengers) at the 27th Airports Council International (ACI) Europe General Assembly, Congress and Exhibition, which was attended by over 400 aviation chief executives and industry leaders.
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In addition to carrying out two case studies, the researcher conducted a survey-questionnaire for the integration of quality and strategy in the airport, which was conducted in eleven airports, six airports in Libya, and five airports in Ireland, as well as four airlines, two airlines are in Libya, namely Libyan airlines and Afriqiyah airways, and two airlines are in Ireland, namely Ryanair airlines and Aer Lingus airlines.

1.9 Research Methodology
In this thesis, research methodology (Discussed in detail in chapter 5) is based on field work, which consists of two benchmarking case studies. These case studies included the use of the Service Blueprinting technique as well as service quality factors in order to present the optimum passenger service processes in the framework. In addition to conducting case studies, a strategic quality management survey was carried out in order to identify the relations between two existing models of strategic management and the concepts of strategic quality management to be presented as a part of the proposed framework. Research tools consisting of extensive interviews were used to question the members of the airport and airlines management teams, as well as the survey questionnaires to gather data from airport, airline members of staff and passengers.

1.10 Publications From This Thesis
Three conference papers published during the previous period of completion of this research, these peer-reviewed papers are as follows:

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1.11 Thesis Structure

This thesis divided into nine chapters as follows:

**Chapter 1**: This chapter gives a background to the research and describes its problem statement, aim, questions and objectives. This research also describes the significance, expected contribution to knowledge, scope, methodology, publications and structure.

**Chapter 2**: This chapter provides an overview of a theoretical and realistic background to the nature of the airport sector. This chapter also presents the airport management in terms of both passengers and air cargo processes as well as provides a brief background to the significance of airport benchmarking.

**Chapter 3**: In this chapter, a review of the literature is presented in order to provide a theoretical background and to develop an understanding of the significance and role of Strategic Quality Management (SQM) and its implications in service sectors.

**Chapter 4**: This chapter contains a detailed description of operational processes of an airport, and related tools of operational processes analysis for passengers services. It also provides a description of Service Blueprint as a method used in this study.

**Chapter 5**: This chapter outlines a description of the research methodology. The methodology includes the fieldwork and data collection methods.
employed. The chapter also describes the rationale for using both case study and questionnaire methods and it describes the criteria and methods for selecting and accessing key informants in the domains of the airport sector. It also gives a description of Service Blueprint as an analysis method used in this study.

**Chapter 6**: This chapter presents, analyzes and discusses fieldwork research, which consist of three main sections: The first section discusses benchmarking case study one, which presents the nature of airports and understanding as well as analyzing passenger service operations. The second section is benchmarking case study two which shows customer focus and the factors affecting it. Section three discusses the findings of the survey questionnaire of the integration of strategy and quality in terms of factors affecting the strength of the relationship from the point of view of airport experts.

**Chapter 7**: This chapter outlines the processes of development of the new framework, which are basically depending on the results obtained from the literature review and the field including the benchmarking case studies and self-questionnaire findings.

**Chapter 8**: This chapter represents the validation process of the proposed framework. This process includes the selection of the most appropriate method of validation, the selection of the criteria, scale, stakeholders, validation results, and discussing validation outputs.

**Chapter 9**: This chapter gives the conclusions to the research. An overview of the work completed is provided, together with a summary of significant findings.

Figure 1.1 illustrates the thesis structure flowchart.
Chapter One: Introduction

Figure 1.1: The thesis structure flowchart
Chapter Two: Literature Review - Airport Organization

Chapter Two: Literature Review - Airport Organization
Chapter Two: Literature Review - Airport Organization

2.1 Introduction
In this chapter, the literature review presents a theoretical and realistic background to the nature of the airport sector. In particular, the airport processes for passengers. In the following sections, the airport industry was reviewed. Then the management of the airport was discussed in terms of passengers. Next, it provides a brief background to the significance of airport benchmarking. After that, it reviews airport international bodies including the Libyan and Irish airport authorities. It concludes with a short discussion on this chapter.

2.2 Airport Management
Airports are not just places where airplanes land and take-off but they are also natural interfaces between ground transport modes and air transport (Classen et al., 2016). Airports are complex organizations whose efficiency depends on the coordination of operations such as taxiing, gate departures and arrivals. Airport efficiency hinges on elements that airport management is more likely to control (i.e., the choice of runway configuration) than others (i.e., weather) (Diana, 2010). Modern airport management requires a more holistic approach to the whole travel chain and aims for a better awareness of airport landside processes and improved resource management, see Classen and Rudolph (2015).

The development of air transport activity worldwide has increased the demand for airport services and the need for more efficient processes of servicing aircraft, passengers or luggage. According to data of the latest research conducted by the Airports Council International (ACI), today’s air travellers have the opportunity to choose between several airports, hence there is the increasing need for airports to compete and to distinguish themselves among their competitors by providing performance advantages. The council conducts, on a quarterly basis, surveys of airport services with a view to determining the level of services provided by a specific airport and the place of the airport in a certain group of airports (benchmarking).
An analysis of literature shows that assessments of the quality of airport services are performed most frequently by conducting passenger surveys. However, insufficient attention is devoted to yet another important participant in this industry, namely, airlines, which are highly important customers for an airport.

In the light of increasing competition, airports need to focus more on strategic planning in terms of quality concepts, not only for competition purposes but also for survival. This is achieved only by adopting an integrated system of strategic planning and quality management with emphasis on improving service operations, especially in the seam points between the customer and the service provider. The aim is to redesign or improve the service to achieve continuous improvement and gain high levels of performance of employees. (Pabedinskaite and Akstinaite, 2014)

Airport operations constitute a complex interaction of many dissimilar activities undertaken by diverse organizations ranging from airlines, air crews, handling agents, engineering support, fuel, catering, and the providers of safety and security services. Many services are provided under contract and no physical links exist between the partners. In consequence, coordination and management of these different activities may be dysfunctional, and a demanding, complex task is made more challenging by the absence of a common situational picture. Is the air-craft on schedule or not? Time sources used include the published timetable, airport information system and Aircraft Communications Addressing, and Reporting System (ACARS) messages.

The absence of a common picture, the lack of effective in-time communication and cooperation and the hoarding of information results in a somewhat confused “picture” which when events run to schedule has little impact. The converse is true when even minor changes to the plan occur. If effective means of understanding and cooperation were available, improved situation awareness would benefit all airport operations stakeholders at little or no cost.
Effective management of assets would result in reduced capacity loss in terms of time, an increase in through-put and a direct return to the bottom-line of the airport operator. The airlines would gain from “extra” capacity and reduced costs of disruption, and support services from increased business and the ability to redeploy contingency staff and equipment to operational and therefore revenue earning tasks. Terminal operations would benefit from additional throughput. And the passengers would gain from a more faithful adherence to the timetable. (Skyway, 2005).

The majority of previous studies have treated airport technology as a single production process, avoiding the complexity inherent to airport systems. Gillen and Lall (1997) and Pels (2003) were the first to argue that the airport could be analyzed as two separate decision-making processes, one serving airside activities and the other serving landside production. (Yu, 2010) is the first to present an operational framework of airport services as a multi-stage process opening the black box (Fare, 1991), the black box means to focus on inputs and outputs without regard to the nature and details of operations, utilizing a slack-based measure of airport network performance (Oum, 2003).

(Yu, 2010) analyzed airport operational activities decomposed into production, airside and landside services, whilst taking into account environmental factors such as any others.

In the production stage, inputs include labor and quasi-fixed runway, terminal and apron areas. The intermediate products are defined as runway and terminal capacities. The airside outputs include aircraft movements and the landside outputs cover cargo and passenger transportation. It has been also argued that a single black box approach would be insufficient to capture the rich picture underlying the multi-stage airport technology as demonstrated in Figure 2.1 (Adler et al., 2012)
2.3 Passenger Operations

The Airport serves as an interface between ground and air transportation (Jim and Chang, 1998). It provides services for arrivals and departures, as well as transit passengers and baggage, and serves as the operations center for both airside and landside air transport. Airports are divided into landside and airside areas. The landside area is open to the public, while access to the airside area is tightly controlled. The airside area includes all parts of the airport around the aircraft, and the parts of the buildings that are only accessible to passengers and staff. The departure procedure in an airport passenger terminal is characterized by tight flight schedules and processes that
require efficient coordination. With the rapid development of international trade and the globalization of industries, the demand for air transport has grown at a phenomenal rate. As noted by Baker (2003) prior to 11 September 2001, the air transport industry had been trying to explore measures to overcome delays caused by congestion at airports whose demand for services grew in excess of their increase in capacity. After hitting a 5-year low in 2002, the average delay in air transport began to climb again, and the situation was further aggravated by the recovery in demand for passenger and air cargo traffic.

A review of the development of most major international airports around the world shows a similar trend. That is, existing infrastructure has to be expanded owing to the saturation of current capacity or the need to meet forecast demand. However, increasing capacity by expansion may result in problems such as insufficient land set aside for future building, land development in the periphery of the airport, and high standards set for noise control and environmental protection. Since external expansion is difficult, if not impossible, and in the face of limited resources, developing methodologies to increase terminal capacity through efficient operation has, thus, become an important issue. (Chaug-Ing et al., 2015).

Modern airport management requires a more holistic approach to the whole travel chain and aims for a better situational awareness of airport landside processes and improved resource management. The main key to this is a proactive passenger management system, as introduced by Classen and Rudolph (2015). Unlike management’s common reactive approach to passengers, a proactive passenger management system utilizes early knowledge about the passengers’ status and the expected situation in the terminal along with resulting system loads and resource deployment. An appropriate and modern management compatible with the Total Airport Management (TAM) approach will also consider dependencies of airside and landside operations as well as costs and performance. Passenger management means an operational approach where the management and control of airport terminal infrastructures, services
and passenger processes are conducted based on knowledge about the dynamic system status more in advance. Today passenger management at airports is rendered on an ad hoc basis, see Helm et al., (2014).

"Apart from planning ahead based on experienced data during the weeks before the actual day of operations and some last adjustments the day before there is no or only little knowledge about the actual situation to be expected. Therefore, current passenger management can only react. Proactive Passenger Management will act rather than react. It is a concept where planning and control of the terminal processes is facilitated by a decision support system that provides a situational awareness not just of the present moment but also about the expectable future of the actual day of operations" (Classen et al., 2016).

2.4 Airport Benchmarking

Benchmarking has become widely used in recent years in order to learn lessons from the best practice and improve competitive performance. Many studies have dealt with the issue of benchmarking in different businesses. Benchmarking is useful because it helps planners and designers identify the areas in which their organization is below the world-class standards, and thus needs improvement (Chang and Kelly, 1994). (Camp, 1989) defines benchmarking as “the search for those best practices that will lead to the superior performance” of a unit or organization. Benchmarking highlights problem areas and the potential for improvement, providing an incentive to change, and assists in setting targets and formulating plans and strategies (Meade, 1998). Benchmarking within the airport industry has only really begun to be accepted as an important management tool during the last 15 to 20 years. Prior to this, commercial and business pressures within the airport sector were less pronounced and airports were under government ownership – at a time when benchmarking techniques were not widely used by the public sector.

"Benchmarking airports is currently popular both in the academic literature and in practice but has proved rather problematic due to the heterogeneity inherent
in any reasonably sized dataset. Most studies either treat the airport production technology as a black box, or separate the terminal and airside activities, assessing them individually". (Adler et al., 2012)

Moreover, airport benchmarking was viewed as a particularly difficult task because of the diversity in the outputs, inputs and operational environment. These perceived difficulties only further hindered any attempt to seriously develop comparative performance measures (Graham, 2005). Elmuti and Kathawala (1997) specify four types of benchmarking, namely internal benchmarking, competitive benchmarking, functional benchmarking and process (generic) benchmarking. In this research functional benchmarking was conducted depending on case study results as passengers operations only have been selected to be studies. To conduct the benchmarking process there are several stages to be taken which are presented in a model. Most models of benchmarking process include the following steps, according to (Bateman, 1994) (see Figure 2.2).
2.5 Airport International Bodies

There are three main organizations representing the activities of international airports and international air transport. They are International Civil Aviation Organization (ICAO), International Air Transport Association (IATA) and Airports Council International (ACI).

2.5.1 The International Civil Aviation Organization (ICAO)

The International Civil Aviation Organization (ICAO) is a UN specialized agency, established by States in 1944. ICAO works to:

- Manage the administration and governance of the Convention on International Civil Aviation (Chicago Convention).
- Work with the Convention’s 192 Member States and industry groups.
- Reach consensus on international civil aviation Standards and Recommended Practices (SARPs) and policies in support of a safe, efficient, secure, economically sustainable and environmentally responsible civil aviation sector.
- Resolve consensus-driven international SARPs and policies among its Member States and industry.
- Coordinate assistance and capacity building for States in support of numerous aviation development objectives.
- Corporate with the Airports Council International (ACI), the Civil Air Navigation Services Organisation (CANSO), the International Air Transport Association (IATA), the International Business Aviation Council (IBAC), International Coordinating Council of Aerospace Industries Associations (ICCAIA), the International Council of Aircraft Owner and Pilot Associations (IAOPA), the International Federation of Air Line Pilots’ Associations (IFALPA) and the International Federation of Air Traffic Controllers’ Associations (IFATCA).
2.5.2 The International Air Transport Association (IATA)

IATA was founded in Havana, Cuba, on 19 April 1945. It is the prime vehicle for inter-airline cooperation in promoting safe, reliable, secure and economical air services - for the benefit of the world's consumers. Today it has some 280 members from 120 nations in every part of the globe. Technical work evolved into seven broad areas. Avionics and Telecommunications included the vital air navigation function; Engineering and Environment developed IATA policy on aircraft noise and other emissions; Airports defined airline requirements for airport terminals; Flight Operations worked on safety factors such as minimum aircraft separation standards and air routings; Medical monitored health standards for flight crews and facilitated air travel for disabled passengers; Facilitation attempted to speed the flow of people and goods through airports-particularly, customs and immigration; Security worked on measures to safeguard passengers and cargo by preventing hijacking and sabotage and on minimizing fraud and theft of tickets. (www.iata.org)

2.5.3 Airports Council International (ACI)

Airports Council International (ACI) is the only global trade representative of the world’s airports. Established in 1991, ACI represents airports interests with Governments and international organizations such as ICAO, develops standards, policies and recommended practices for airports, and provides information and training opportunities to raise standards around the world. This section provides information on the structure and background of ACI. (www.aci.aero)

In 2017, the world’s airports accommodated 8,277,676,508 passengers, 118,612,750 metric tonnes of cargo, and 95,772,011 aircraft movements. ACI reported 573 members operating 1751 airports in 174 countries and territories, representing over 95 percent of global airport traffic. ACI regular members are owners or operators, other than airlines, of one or more civil airports with commercial air services.
Chapter Two: Literature Review - Airport Organization

The ACI gives out the Airport Service Quality Awards (ASQ), based on passenger satisfaction ratings in the ASQ Survey, which is a global survey based on interviews with passengers on the day of travel. Along with the World Airport Awards by Skytrax, it is considered one of the most prestigious accolades in the industry. (CNN Go, 2012)

The awards are given out in four categories:

1. Best Airport by Region
2. Best Airport by Size
3. Best Regional Airport
4. Best Improvement

**ACI services**

ACI offers a variety of services to its members in all regions as follows:

- Airport Excellence (APEX) in Safety.
- World Business Partners Programme.
- Website, Email and Publication Advertising.
- Airport Job Search.

Due to the lack of published information on civil aviation activities in general and airport activities in particular in Libya. Therefore, Libyan airport statistics were not included in the publications of the Airport Council International (ACI). Libya benefits from the services of the Airport Council International through training programs, for example, in 2013, 20 delegates from Libya Aviation Authority (LAA) benefited from the training program of safety provided by this organization.

**2.6 Libyan Airports Authorities**

**2.6.1 Introduction**

The Airports Authority was established by Decree No. 276 and issued on 07 - 06 - 2010, whereby the Airports Authority, in accordance with its decision to manage,
Chapter Two: Literature Review - Airport Organization

operate, develop and draw the policy of all international and domestic airports in Libya under the umbrella of the Ministry of Transport, including 10 international airports and 9 local airports, as shown in Table 2.1: (www.laa.gov.ly)

Table 2.1: The Libyan airports

<table>
<thead>
<tr>
<th>Airport no.</th>
<th>International Airport</th>
<th>Airport no.</th>
<th>National Airport</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tripoli Airport</td>
<td>1</td>
<td>Ghadames Airport</td>
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<tr>
<td>2</td>
<td>Benina Airport</td>
<td>2</td>
<td>Ubari Airport</td>
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<tr>
<td>3</td>
<td>Sabha Airport</td>
<td>3</td>
<td>Alsarir Airport</td>
</tr>
<tr>
<td>4</td>
<td>Misurata Airport</td>
<td>4</td>
<td>Hun Airport</td>
</tr>
<tr>
<td>5</td>
<td>Al Abraq Airport</td>
<td>5</td>
<td>Martuba Airport</td>
</tr>
<tr>
<td>6</td>
<td>Misurata Airport</td>
<td>6</td>
<td>Zuwarah Airport</td>
</tr>
<tr>
<td>7</td>
<td>Kufra Airport</td>
<td>7</td>
<td>Kambot Airport</td>
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<tr>
<td>8</td>
<td>Ghat Airport</td>
<td>8</td>
<td>Tamanhent Airport</td>
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<tr>
<td>9</td>
<td>Tobruk Airport</td>
<td>9</td>
<td>Brak Airport</td>
</tr>
<tr>
<td>10</td>
<td>Sirte Airport</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The management of airport works to ensure continuous operation to receive air traffic by providing all the necessary needs and services provided to aircraft in the air side such as airfields, parking areas and airfield lighting systems, which are provided to passengers inside the terminal building through the processing of passenger halls, from the beginning of entering the hall to the rise of the aircraft and vice versa by providing electronic systems and electromechanical services necessary to complete the procedures of passenger services such as security inspection and transportation of baggage and air conditioning and fire alarm and other systems.

2.6.2 Objectives of Libyan Airports Authorities:

To provide the services mainly to achieve the highest possible standards of safety and security both in the provision of aircraft or passengers and to apply the law
Chapter Two: Literature Review - Airport Organization

of civil aviation and legislation in force to attract the attention of air transport companies to increase the number of flights from/to Libyan airports and the services to the national economy and its role in growth and development. The airports authority joined the Airport Council International (ACI) and became a member from the beginning of 2012. (www.laa.gov.ly)

2.6.3 Tasks of Libyan Airports Authorities:
It is summarized as follows: The department shall be responsible for drawing up plans and programs necessary for the organization and development of skills and in carrying out the following tasks: (www.laa.gov.ly)

- Implementation of legislation relating to airports.
- Organizing and developing the work methods at airports in coordination with the Civil Aviation Authority.
- Carrying out regular and urgent maintenance work related to passenger stations, airfields, parking lots, observation tower buildings and other works that ensure the operation of airports with the latest specifications.
- Studying, identifying and developing tourism and service projects at airports in coordination with the competent authorities.
- Maintain the system and security within the airports in coordination with the competent authorities.
- Establishing the rules and regulations of contracts of participation with foreign companies and institutions for the management and operation of airports and making the necessary arrangements in accordance with the legislation in force.
- The collection of fees and revenues related to the operation of passenger stations, as well as 70% of landing revenues, fees and services at airports according to the legislation in force.
- Develop the necessary training programs and prepare the human, administrative, financial and technical staff who able to manage civil airports for optimal employment of airports.
Commitment to implement agreements concluded in airports.
Commitment to the implementation of systems and standards relating to the flow of passengers and ground services.
To comply with the instructions and publications issued by the competent authorities relating to passenger traffic.
Carry out the required insurance for airport facilities and services.
Follow-up to all actors working at airports regarding security and safety issues and raising the level of services.
Preparation of a working manual for airport operators.
Application of agreements concluded in the fields of airports.

2.7 Irish airports
The Irish Aviation Authority (IAA) is a commercial semi-state company in Ireland responsible for the regulation of safety aspects of air travel. It is also responsible for providing air traffic control services to Ireland's three main airports, namely Dublin, Shannon and Cork. Its head office is in The Times Building in Dublin. The smaller airports such as Ireland West Airport Knock and Kerry provide their own approach and aerodrome service.

The authority regulates the safety standards of Irish civil aviation and provides air traffic management and aeronautical communications services in Irish controlled airspace. The authority was established under the Irish Aviation Authority Act, 1993. The authority controls air traffic for all the major international airports in Ireland.

Dublin Airport is an international airport serving Dublin, the capital city of Ireland. It is operated by Dublin Airport Authority (DAA). The airport is located 10 km north of Dublin in Collinstown, Fingal. In 2018, over 31.5 million passengers passed through the airport, making it the airport's busiest of the Republic of Ireland's airports by total passenger traffic.

Cork Airport is the second-largest of the three principal international airports in the Republic of Ireland, after Dublin and ahead of Shannon. It is located 6.5 km
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(4.0 mi) south of Cork city in an area known as Farmers Cross. In 2018, Cork Airport handled 2,392,821 passengers, a 3.7% annual increase. Cork is the state's second-busiest airport in terms of passenger numbers, after Dublin, and fourth busiest on the island of Ireland, after Dublin, Belfast International and Belfast City.

Shannon Airport is one of Ireland's three primary international airports, along with Dublin and Cork. In 2018, 1,677,661 million passengers passed through the airport, making it the third-busiest airport in the country after Dublin and Cork. Shannon Airport is located in Shannon, County Clare, and mainly serves Limerick, Ennis, Galway and the south-west of Ireland. The longest runway in Ireland, at 3,199 meters (10,495 ft), is located at Shannon, which was a designated landing site for the Space Shuttle.

Ireland West Airport, officially known as Ireland West Airport Knock, is an airport 5.6 km (3.5 miles) south-west of Charlestown, County Mayo, Ireland. The village of Knock is 20 km (12.5 miles) away. In 2018, 775,063 passengers used the airport, making it the fourth busiest in Ireland after Dublin, Cork and Shannon.

Kerry Airport, often called Farranfore Airport, is a regional airport in Farranfore, Killarney, County Kerry, Ireland. It is 7 nautical miles (13 km; 8.1 mi) north of Killarney and the Ring of Kerry, and 8 nautical miles (15 km; 9.2 mi) south-east of Tralee. Passenger services are operated by Stobart Air for Aer Lingus Regional, and Ryanair. In 2017 Kerry Airport handled 335,480 passengers an increase of 3% over 2016.

2.8 Discussion
Understanding the nature and management of airport operations is an important consideration in developing a new model for strategic quality management in the aerospace sector, where airport operations management focuses on security, safety and quality aspects by airport management, airlines and ground service companies.
Airport management manages its operations in accordance with national standards and adopts the standards of regional and international bodies such as The International Civil Aviation Organization (ICAO), The International Air Transport Association (IATA) and Airports Council International (ACI).

Although most airports around the world adopt local and international standards, it is clear that there are still differences in the application of these standards from one airport to another. These differences affect in one way or another the performance of airports and the flow of operations as well as issues of security, safety and quality.

Based on the study of literature which has been presented in this chapter, it showed that there is a need to understand and implement a comprehensive approach to airport operations management in an integrative manner. Based on recent studies such as Diana (2010) who argues that airports are complex organizations, Classen and Rudolph (2015) state that modern airport management requires a more holistic approach, and according to the latest research conducted by ACI, today's air passengers have the opportunity to choose between several airports. Based on that, the first, second and the third research questions have arisen.

The first question refers to "What is the general understanding of the concepts of strategic quality management?" and it has been addressed in chapter three. While the second question refers to "What are the key factors which effect passenger service operations?" and it has been addressed in chapter six. Question three "How does the airport evaluate and use evaluation outputs to improve service quality and operations for the passenger?" and it has been addressed in chapter six.
Chapter Three: Literature Review – Strategic Quality Management
3.1 Introduction

In this chapter, a review of the literature is presented in order to provide a theoretical background and to develop an understanding of the significance and role of Strategic Quality Management (SQM) in both manufacturing and service sectors.

In the following sections, strategic planning was reviewed. Then the strategic quality management has been discussed in terms of its core concepts. Next, it provides a brief background to the significance of core concepts of SQM. After that, it reviews the stages of the development of strategic quality management. Following this, the reviews of the integration of strategic planning and quality management. Finally giving a short summary of this chapter.

3.2 Defining Strategy

Strategy is the direction and scope of an organization over the long term, which achieves advantage in a changing environment through its configuration of resources and competences (Johnson et al., 2009). According to Blanchard and Waghorn (1997), strategy is one’s approach to achieving a sense of mission, sometimes defined as the way an enterprise creates unique value. Developing effective growth options for a firm is difficult due to the information overload associated with evaluating multiple options in today’s competitive environment. Generating growth strategies involves simultaneously being aware of multiple environmental factors and trends, competitors, customer value propositions, government regulations, etc. The ability to integrate these into profitable strategy is a daunting task for many leaders (Eppler and Platts, 2009).

Strategic planning is a process that brings to life the mission and vision of the enterprise. A strategic plan, well-crafted and of value, is driven from the top down; considers the internal and external environment around the business; is the work of the managers of the business; and is communicated to all the business stakeholders, both inside and outside of the company. As a company grows and as the business environment becomes more complex the need for
Chapter Three: Literature Review – Strategic Quality Management

strategic planning becomes greater. There is a need for all people in the corporation to understand the direction and mission of the business. Companies consistently applying a disciplined approach to strategic planning are better prepared to evolve as the market changes and as different market segments require different needs for the products or services of the company. (Isoraite, 2006)

3.3 Strategic Management

In today’s highly competitive business world, companies are forced to achieve sustained profitability for survival in the global market and continuously need to dynamically develop the most effective strategies for staying competitive for profitability. To this end, managers should have a comprehensive understanding of the problem domain to make proper decisions, and this makes knowledge one of the most important assets of the company (Grant, 1996). Olsen et al. (2008) define strategic management as “the ability of the management of the firm to properly align the firm with the forces driving change in the environment in which the firm competes”.

According to David (2009) the approach of strategic management lists what steps managers should take to create a complete strategy and how to implement that strategy successfully in the company. It might comprise from 6 to nearly 30 steps and tends to be more formal in well-established organizations. The way that strategies are created and realized differ. Thus, there are many different models of the process. The models vary between companies depending upon:

- Organization’s culture.
- Leadership style.
- The experience the firm has in creating successful strategies.

David (2009) provides an excellent model of strategic management that is characterized by its emphasis on the most important component of management systems, namely the development of the vision of the organization as well as the logical sequence of the other steps of strategic management. This model includes six steps as follows:
1. Develop vision and mission
2. External and internal environment analysis
3. Establish long-term objectives
4. Generate, evaluate and choose strategies
5. Implement strategies
6. Measure and evaluate performance

Some of the above six steps were discussed in the following sections independently and others were discussed in line with the concepts of quality management.

3.3.1 Vision

A vision statement is a future-oriented declaration of the organization’s purpose and aspirations. In many ways, you can say that the vision statement says, “based on that purpose, this is what we want to become.” The strategy should flow directly from the vision, since the strategy is intended to achieve the vision and thus satisfy the organization’s mission. (Washington, 2014)

Typically, vision statements are relatively brief, as in the case of Starbucks’s vision statement, which reads: “Establish Starbucks as the premier purveyor of the finest coffee in the world while maintaining our uncompromising principles as we grow (Starbucks, 2008).” Or advertising firm Ogilvy & Mather, which states their vision as “an agency defined by its devotion to brands (Ogilvy, 2008).” Sometimes the vision statement is also captured in a short tag line, such as Toyota’s “moving forward” statement that appears in most communications to customers, suppliers, and employees (Toyota, 2008). Similarly, Wal-Mart’s tag-line version of its vision statement is “Save money. Live better (Walmart, 2008).”

For example, the vision of Dublin airport is to deliver a quality airport travel experience to the best international standards. (Sustainability Report, 2011). The vision of Shannon airport is "to be a customer and value driven success story making a real difference by attracting more and more people and businesses to our region". (Shannon Annual report, 2015)
3.3.2 Mission

Most firms have mission and vision statements. In the worst case scenario, mission and vision statements are included implicitly. Supporting the above argument, Bart et al. (2001) posited, referring to Bain et al. (1996) study, that mission statements had consistently been shown to be the top-rated management tool deployed by senior managers during each of the ten years prior to his study. Mullane (2002) argued and supported it empirically that mission and vision statements are useful for practical day-to-day operations, taking a contrary view to those who assert they are archaic documents that are typically exhibited as wall hangings. (Darbi, 2012).

A mission statement is a short statement of an organization’s purpose, identifying the scope of its operations: what kind of product or service it provides, its primary customers or market, and its geographical region of operation. (Gibson et al., 1992). According to Airport Cooperative Research Program (ACRP) Report (20) A mission statement is a concise statement of the organization’s purpose and reason for existence, developed from the perspective of an organization’s customers (ACRP REPORT 20). For example, The mission of Shannon Airport is "to manage and develop our aviation, tourism and property assets, to generate a sustainable commercial return, to drive excellence in safety standards and service to customers and to make a difference to the communities we serve". (Annual report, 2015)

3.4 The Organization's Internal and External Environment

3.4.1 Internal Environment

"Managing the internal environment is usually connected to the degree of performance achievement of a business entity (Albert, 1981; Stegall, Steinmetz and Kline, 1976). However, rare are studies that examine the impact of an internal environment as a whole (combination of all/most of the internal factors) on business strategy and performance" (Cyert and March 1992; Daft and Weick, 1984). The first component of the situational analysis is the internal assessment. The internal structure, processes, and operations of the organization are
assessed to identify its strengths and weaknesses. The internal assessment also reveals the paradigms and values that represent the organization’s current philosophy and drive or that disrupt current operations. (ACPR REPORT, 2009).

### 3.4.2 External Environment

External environments comprise of factors existing outside the organization. Regardless of the industry, these factors will have enormous effect on any firm’s growth and survival. Firms have to be aware of the conditions in its external environment and firms have to identify and understand the most significant threats and opportunities in its external environment that influences the company. External environments consist of many different factors comprising an enormous entity, including political, sociological, demographical, global and technological factors, customer preference and related industries factors, to name a few. External environments can be divided into three major areas including general, industry and competitor environments. (Lynch, 2006).

As managers, their role in any strategic planning are likely to involve providing operational data to help assess the internal capabilities, and (depending on the job function) which may also be asked to provide market intelligence.

According to (McGee et al., 2005) in order to understand the business environment that a firm operates in, it is necessary to analyze the general environment and the firm’s industry and competitive environment. In most cases firms will compete with other firms that are operating in the same industry, providing similar products to similar customers and undergo similar process of manufacturing. The key to successful strategic planning lies in gathering information from firms operating in the same industry and analyzing the data to understand the competitive dynamics. This can be done by SWOT analysis. SWOT analysis is a technique which is used to analyze the strengths, weaknesses, opportunities and threats of business (Ommani, 2011) and it is one of the several strategic planning implements that are used by businesses and the other organizations, on the other hands, all factors (Internal and external) are related
to the effort, both positive and negative (see Figure 3.1) and it's identified and addressed. In order to achieve this task, the process involves four areas of consideration: strengths, weaknesses, opportunities, and threats. It should be noted that, when identifying and classifying relevant factors, the focus is not just on internal matters, but also external components that could influence the success of the project. (Osita et al., 2014).

SWOT is the acronym for a company’s strengths, weaknesses, opportunities and threats. According to the advocates of SWOT, strengths refer to inherent abilities to compete and grow strong. Weaknesses are the inherent deficiencies that cripple growth and survival. Strengths and weakness are mostly internal. Opportunities are the good chances and openings available for growth. Threats are externally wielded challenges, which might suppress inherent strengths, accelerate weakness and stifle opportunities from being exploded. To succeed in any field, weaknesses must be overcome through strengths and threats must be transferred into opportunities. (Omer, 2018)
3.5 Strategic Quality Management Definitions

Many firms which practice independently sound management methods to implement higher quality fail because these methods are either not aligned with strategy or because these methods are not properly co-ordinated with each other. Therefore, effective quality management cannot be practiced in isolation from other initiatives and from the overall strategy of the firm. (Srinidhi, 1998)

Strategic quality management (SQM) was developed to address the gap though the formulation and deployment of quality management within the overall framework of strategic planning (Srinidhi, 1998). According to Juran (1999), SQM is a systematic approach to setting and achieving quality objectives throughout the company. The BSI Standards (BS7850-1) (1992) (which was cancelled) defines it as a management philosophy and company practices that aim to harness the human and material resources of an organization in the most effective way to achieve the objectives of the organization. Deming (1986) put the responsibility for continuous improvement of products and services to meet customer needs and to stay ahead of competition squarely on management. In fact, the major emphasis of Deming’s philosophy on quality management is that top management must orient themselves to innovate and commit resources constantly to support innovation and continuous improvement.

Tummala (1996) defines strategic quality management as a comprehensive and strategic framework linking profitability, business objectives, and competitiveness to quality improvement efforts with the aim of harnessing the human, material and information resources organization-wide in continuously improving products or services that will allow the delivery of customer satisfaction. This definition, as mentioned earlier, "describes the basic elements which are required and emphasizes the need for the management process in accomplishing the quality improvement goals and objectives". Successful implementation of strategic quality management is not an easy task. As Deming stated, “Everyone doing his best is not the answer. It is necessary that people know what to do". Drastic changes are required. (Tummala, 1996)
3.6 The core concepts of SQM

The concept of Strategic Quality Management (SQM) was identified in one form or another since the first theoretical or applied research by the renowned world quality researchers Deming, Juran, Crosby, Feigenbaum, Ishikawa, Garvin etc. Today SQM principles are also reflected in the criteria for applying for the Quality Awards and ISO 9000 requirements. The new strategy is based on the quality of organization, planning, empowerment and broad commitment to complete customer satisfaction. All these elements bring a new support called Strategic Quality Management: collaborative quality, creative quality, strategic quality. (Paraschivescu and Caprioara, 2014).

SQM, however, is useful not only in large or established organizations, but also in new firms which are in a fast growth period. It is likely that the newer firms might not have explicitly incorporated SQM in their strategic planning process. A good case in point is Netscape Corporation.

The core concepts of (SQM) were identified and promoted by the quality gurus in one form or another in managing quality within seven concepts as follows: “customer focus (CF), leadership (LDR), continuous improvement (CI), strategic quality planning (SQP), design quality, speed and prevention (DQSP), people participation and partnership (PP&P), and fact-based management (FBM)” (Tummala, 1994). These seven concepts will be as the basics of the evaluation and to establish the proposed framework of strategic quality management. Based on that, the objective five in this research has been set up, which refers to "Developing a new framework to assist decision-makers in applying best practice methods in the strategic quality management in the airport sector".

These seven basic concepts are essential in achieving the basic objectives of SQM as the rays of a wheel that goes up the slope towards customer satisfaction and organizational performance. An analysis of criteria for quality awards indicates that these concepts are included and are considered particularly suitable for the implementation of strategies to improve quality and achieve excellence.
(Paraschivescu and Caprioara, 2014). Figure 3.2 illustrates the wheel of seven core concepts of SQM.

3.6.1 Customer focus

While most firms acknowledge the importance of their customers, firms with a strong customer focus have strongly-held institutionalized processes and procedures directed toward understanding customers and addressing their needs. They extend previous work on the importance of customer focus in interorganizational settings (e.g., Langerak, 2001; Rindfleisch and Moorman, 2003; Saporito et al., 2004; Siguaw et al., 1998). A spotlight on customer focus for two reasons. First, customer focus is an important element of organizational culture that is strongly related to the marketing function. Second, prior research demonstrates that customer focus and business performance are positively related (Best 2004; Jaworski and Kohli 1993; Pinar et al., 2007).

The classical academic canon supporting a customer-focus argues that customers spur firms to invest in innovation and channel that investment in particular directions (Schmookler, 1966) cited by (Sendil et al., 2012) Companies are
investing more and more investment and management efforts in improving customer satisfaction. Improving customer satisfaction and its measurement involves the taking of appropriate marketing strategies and tactics. "The quality process is a continuous loop that begins, ends, and begins again with the customer. Thus the focus on quality must be from a process-driven discipline to a customer-driven discipline. All product or service attributes that contribute value to the customer and lead to customer satisfaction need to be addressed. Juran and Crosby have underscored this concept by defining quality as “fitness for use” and “conformance to requirements” respectively. Ishikawa, on the other hand, advanced the concept of Company Wide Quality Control (CWQC) with the goal of producing products or services that customers want. Similarly, Garvin highlighted customer focus from a strategic viewpoint. Thus, customer focus must be the overall goal of all quality objectives and strategies in implementing strategic quality management”. (Tummala, 1994)

Two fundamental forces that drive the strategy in the aviation industry are safety and customer service (Appelbaum and Fewster, 2003). There is immense competition between airports to attract business and get more airlines to choose them as their destination. The quality of customer service could be the determinant that attracts airlines to an airport. Issues such as handling of customer complaints and proactively putting in plans to avoid them are very important for the overall success of an organization (Bell and Luddington, 2006; and Robbins and Miller, 2004). To understand customer satisfaction, Martin (1992) introduced seven areas of customer research including critical service factors, customer priorities, parameters of performance, current performance standards, competitive performance standards, benchmark suppliers and service opportunities. (Embry, 2013)

3.6.2 Leadership
The founders of QM (Deming, 1986), QM theoreticians (Dean and Bowen, 1994) and empirical QM studies (Sousa and Voss, 2002) have stressed the importance
of leadership to QM, but leadership has not been fully explored in the QM research to date. Deming and other quality practitioners considered visionary leadership to be an essential requirement for an effective QM program (Anderson et al., 1995; Curkovic et al., 2000).

"All senior managers must create clear and visible quality values and high expectations and build them into the way the organization operates. This requires their personal commitment and involvement in substantial proportions. They must take part as role models in the creation of strategies, systems, and methods for achieving excellence in quality". (Tummala, 1994)

Many QM researchers have identified leadership as a critical factor for the successful implementation and operation of QM (Ahire, 1996; Saraph et al., 1989). But, there are no rigorous examinations of what type of leadership is the most appropriate for QM. For example, only five of the ten empirical studies reviewed by Sousa and Voss (2002) included either top management support or leadership as a variable in their study. In a meta-analysis of empirical research about QM from 1995 to 2004, Nair (2006) found that leadership was positively correlated to firm performance.

Airport Chief Executive Officers (CEOs) might not like to admit it, but in any modern gateway there is no shortage of areas where change is necessary. There is, for example, a constant need to look at new ways of working to improve efficiency, effectiveness and reduce costs. New technologies have to be introduced and developing the commercial side of the business to boost revenues and improve the passenger experience is now high on the agenda of most airports. And in today’s ever-demanding world, who can forget the need to change and adapt to ensure that airports embrace sustainable development and more customer focused strategies. Whilst these things may sound reasonably straightforward to implement, the opposite is often true. (www.worldairportawards.com)

It appears as if one of the main difficulties airport leaders face today when introducing change is to how to get the new philosophy to stick. Why is this? The
most frequently cited reason is ‘resistance to change’. Major changes require people to change their attitudes and behaviour; to work in ways they have not done before; to think of things differently and to get out of old habits. And the battle for hearts and minds is a tough one to win. Just telling people what to do differently is rarely effective. People have their own ways of doing things and don’t always take kindly to being instructed what to do by others who don’t know the details of their situation. Still, the temptation to order people to do things in a new way and leave it at that – without much explanation – is always there, particularly when time is short. How many managers have asked in frustration when a major change doesn’t live up to their expectations, ‘why won’t they do what we tell them?’ (www.worldairportawards.com)

3.6.3 Continuous Improvement

According to Deming and Juran, the baseline for continuous improvement is the control of processes and the reduction of variation and waste. Juran has identified the sporadic vs. chronic wastes related to the systems and processes which are used to produce products and found that 85 per cent of the problems are due to chronic waste and only 15 per cent are due to sporadic waste (Neave, 1990). Continuous improvement [CI], as culture, tools and methods, is critical to manufacturing and service companies’ competitive position. Research has documented that as many as two out of three CI programs fail, in the sense of not meeting goals and expectations. While poorly designed CI systems and misguided use of tools and methods may explain some failed CI initiatives, surveys and expert polls indicate that the main barriers to CI success are organizational and managerial. (Eirin Lodgaard, 2016).

The application of CI within the entire organization presents a variety of challenges. Garcia-Sabater and Marin-Garcia report that in many cases, there is a lack of strategic orientation with respect to CI. (Sabater and MGarcia, 2011).

The study of Eirin Lodgaard (2016) showed that unless the opinions of different groups at different hierarchical levels are listened to, efforts to overcome barriers to CI may be misguided. In particular, top managers should take care to
consult different groups of employees before choosing a path of action. Additionally, there should be put in place mechanisms that create confidence and trust between groups at different hierarchical levels.

Continuous improvement is the heart of quality management. Change will not happen if it is not clear to everyone involved what needs to be improved, why it has to be improved, how it will be improved, how actual improvement can be measured and how the improvement can be maintained. The belief of continuous improvement is evident in this world and is evident all around us. For example, a product turns out not to work well in practice or could be improved, made simpler or made less expensive. Continuous improvement is about learning from mistakes and experiences in order to do better in the future. Knowledge is obtained by experiencing what works and what doesn’t work.

Continuous improvement is the cornerstone of SQM and requires well-designed and well-executed management of all systems and processes. Do it right today, and better tomorrow should be the guiding principle. Enhancing value to the customer through new and improved products and services; getting consistently uniform products and services by benchmarking; reducing variation, and waste; reducing the number of defects (six-sigma quality or better); improving responsiveness and cycle time performance; and improving productivity and effectiveness in the use of all resources should be the objectives for continuous improvement of all operations and of all work unit activities of the organization. (Tummala, 1994). Airport operation can be improved at any moment. When the airport finds and solves the bottleneck in its operation, the new bottleneck occurs at the same time. Thus, continuous operation monitoring must be on daily basis to help an airport keep its competitiveness. Nowadays, airports are implementing various kinds of solutions which are designed to improve control processes, staff planning or better usage of ground handling equipment.

They are also searching for operational areas to be optimized. All these steps can lead to lowering delays and financial saving for all stakeholders involved in the aviation industry. (Kazdal and Hromadka, 2011)
3.6.4 Strategic Quality Planning (SQP)

Strategic Planning can be defined as the formulation, implementation and evaluation of cross-functional decisions which enable an organization and its constituents to define and achieve their objectives. While Strategic Quality Planning (SQP) is a relatively new term and as is common with new terms, there are a plethora of definitions depending on the perspective from which it is viewed. (Srinidhi, 1998). As Garvin stated, strategic quality plans are the glue holding together an organization’s quality improvement efforts. (Garvin, 1991). Juran, on the other hand, has built quality planning into the Juran trilogy as one of the three managerial processes in developing the products, systems and processes required to meet customer needs. He has further stressed the need for developing stretch goals, the goals which cannot be met by using the pedestrian pace of the ordinary learning curve; something extraordinary is needed to accomplish excellence in quality (Juran, 1991).

Strategic planning Cycle of Hoyle refers to (Paraschivescu and Caprioara, 2014):
1. Initiated and agree on strategic planning process;
2. Clarify organizational mandate;
3. Identify and understand stakeholders and develop and refine mission and values,
4. Assess the environment to identify strengths, weaknesses, opportunities, and challenges;
5. Identify and frame strategic issues;
6. Formulate strategies to manage the issues;
7. Review and adopt the strategic plan;
   8. Establish an effective organizational vision for the future;
   9. Develop an effective implementation process;
   10. Reassess strategies and the strategic planning process.

Garvin was among the first to recognize the importance of the strategic planning process in formulating quality improvement strategies. He particularly
emphasized that quality planning must be integrated into the overall corporate strategic planning process of the organization. (Garvin, 1990).

Airport managers must increasingly safeguard the economic performance of their airport (Barrett 2000; Starkie 2002). Due to the massive airport financial investments required for development programmes and the uncertainty in the air transport industry, a flexible airport planning model is vital to protect such investments and to reduce the risks of losses and control. Traditional airport master planning does not acknowledge the existence of market uncertainties, which may have serious effects on the reliability of forecasting (de Neufville, 1991). The successful airports will be those with the ability to invest just in time in the right facilities in a way that contributes to good economic performance (Werson and Burghouwt, 2006). On the other hand, the implementation of the traditional airport master plan in isolation from the strategic plan will not achieve the optimum expected results for airport development programmes due to the uncertainties. (Towfiqi, 2018)

3.6.5 Design Quality, Speed and Prevention (DQSP)

As Crosby emphasized, “do it right the first time” and “defect prevention over detection” and hence “zero defects” must be the standard in establishing systems and processes related to all quality activities. (Crosby, 1979).

Design quality, and error and defect prevention should be the major aim of quality systems. In order to accomplish this, there is a need to build quality into products and services and into the processes that produce them. Innovative applications of technology, well-designed and well-integrated systems and processes, and planning of new products or services based on concurrent or simultaneous engineering are some of the creative concepts and tools that need to be encouraged. A major design issue is the design-to-introduction cycle time (speed). To meet the demands of more rapidly changing markets, organizations need to focus increasingly on this issue to achieve shorter product and service introduction time using cross functional management. (Tummala, 1994)

There are sufficient regulatory agencies monitoring the documentation, packing
and handling of dangerous goods to make it unnecessary for ACI to produce guidelines in this area. However, ACI believes that there is a need for procedures governing the movement of dangerous goods from an airport operations standpoint, especially for cases where these goods exceed the quantities allowed in UN, ICAO or IATA regulations. For shipments in excess of the quantities specified in these regulations, shippers, handling agents and airlines should notify airport operators officially in order to make appropriate arrangements. Local manuals enumerating contacts within airlines would be advantageous, in case of incidents or accidents. ACI recognizes the potential hazard created by the carriage of dangerous goods in aircraft. Airport emergency plans should consider the problem created by dangerous goods as defined in ICAO Annex 18 and the Technical Instructions on the Carriage of Dangerous Goods by Air (Doc. 9284). Airports should liaise with airlines and handlers to ensure they are providing adequate facilities and training to deal with the spillage of dangerous substances. Procedures should be developed for dealing with situations in which the presence of dangerous goods is detected by security staff. (ACI, 2009)

3.6.6 People Participation and Partnership (PP&P)

This core concept is perhaps the most difficult, but significant one to address. According to Juran, there is an inherent conflict between the functional organization and multifunctional processes. (Juran, 1991).

The word “people” in this core concept refers to the employees who are hired by the company under unionized or non-unionized agreements, as well as the vendors who supply material and components. As Ishikawa (1985) pointed out, all employees must work together to achieve quality and productivity objectives so that the product or service meets customer satisfaction. This requires a fully committed, well-trained and involved work force in all quality activities. Necessary actions to formulate and implement people (employee) strategies for creating a quality culture and changing the organizational structure to do the “right things right the first time and every time” are to be seriously considered. (Tummala, 1994)
3.6.7 Fact-Based Management (FBM)
This concept stresses the need to make decisions based on reliable data, information, and analyses. These data need to accurately reflect the needs, wants, expectations, and perceptions of the customers; to give accurate descriptions of the performance of goods and services sold; to reflect clearly the market situation; to portray accurately the offerings, performance levels, and satisfaction levels of competitors’ goods and services; to provide clear findings of employee related issues; and to accurately portray the cost and financial matters. The role of analysis is stressed. Here, also, emphasis is placed on the role of benchmarking in comparing organizational quality performance with the performance of competitors or best-in-class organizations. The need for organization-wide performance indicators is also stressed. These indicators are measurable characteristics of goods, services, processes, and company operations. They are used to evaluate, track, and improve performance. They should be clearly linked to show the relationships between strategic goals and all activities of the company (Juran, 1998).

Measuring the performance of the airports, as examples of companies in the long-term public ownership is a critical management activity, which must be consistent with the goals, strategies and key success factors. In this sense, airport performance measures can be divided into three main categories: (1) business performance measures, (2) service performance measures and (3) performance measures of the environment.

3.7 The development of Strategic Quality Management
The evolution of SQM and the forces shaping that evolution make it amply clear that SQM should achieve congruence between the offerings of the firm and the expectations of the firm’s customers. The natural tendency of various management methodologies used in its deployment to grow incongruent with each other requires an explicit framework to continuously monitor the congruence between them. Figure 3.3 below illustrates the stages of an evolution of strategic quality management adapted from (Srinidhi, 1998).
Figure 3.3: The evolution of strategic quality management (Adapted from Williams and Bertsch, 1989)
3.8 Integration of quality management concepts into strategic planning

Managing quality is basically the same with other aspects of management; it requires strategies formulation, goal settings, development of action plans, implementation plans and provision of control and feedback mechanism for corrective actions to be taken. It is thus imperative not to see quality management as solely a controlling device; rather it must be seen as a management function that must be institutionalized in different levels of organizations (Calingo, 1996).

In fact, many excellent organizations have demonstrated that quality has an important strategic value in competitive world. Furthermore, in complex and changing environments, organizations also need to formulate strategy and plan their actions so as to achieve the desirable results. In order to remain effective over time, organization must have a formal strategic management mechanism that would give direction to the attainment of the goals and objectives (Hacker et al., 2001).

Understanding cause and effect relationship is key to linking business strategy and quality. Part of the difficulty with understanding this relationship is the definition of quality itself. David Garvin in his book Managing Quality, refers to this "perceived" quality differential as the "dimensions of quality". They include performance, reliability, serviceability, durability, features, aesthetics, perception and conformance to design. (Beecroft, 1999).

3.9 Strategic Planning in the Airport Business Industry

Strategic Planning in the Airport Industry provides practical guidance on the strategic planning process for airport board members, directors, department leaders, and other employees; aviation industry associations; a variety of airport stakeholders, consultants, and other airport planning professionals; and aviation regulatory agencies.

The airport industry, like other industries, is challenged when sudden or unexpected changes occur in the marketplace. Recent advances in long-term
strategic planning have developed sustainable methods of managing change in the presence of uncertainty. Yet, the strategic planning process has not been widely embraced in the airport industry. Airport professionals and members of airport policy boards can use the strategic planning process to manage these transformations effectively and proactively. (ACRP REPORT 20)(2009). Table 3.1 presents strategic planning in the airport industry.

Table 3.1 The Key content of strategic planning in the airport industry.

<table>
<thead>
<tr>
<th>Provides information about</th>
<th>Best Practices</th>
<th>For conducting the strategic planning process and assessing the organization's internal resources and external situation. Includes best practices from corporations, nonprofit organizations, and public entities.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benchmarking practices</td>
<td></td>
<td>Used in the airport and other industries. Presents recommendations for obtaining meaningful benchmarking comparisons with other airports.</td>
</tr>
<tr>
<td>Includes:</td>
<td>Sample tools and techniques</td>
<td>For assessing strengths, weaknesses, opportunities, and threats (SWOT); creating a Balanced Scorecard; etc.</td>
</tr>
<tr>
<td>Integrates:</td>
<td>Online survey findings</td>
<td>Into each guidebook section</td>
</tr>
<tr>
<td>Outlines:</td>
<td>The definition of strategic planning</td>
<td>Defines strategic planning</td>
</tr>
<tr>
<td></td>
<td>The strategic planning framework</td>
<td>Defines the framework for strategic planning in an airport setting.</td>
</tr>
<tr>
<td></td>
<td>The key benefits of strategic planning</td>
<td>Highlights the benefits of strategic planning.</td>
</tr>
<tr>
<td></td>
<td>The airport planning process</td>
<td>Provides a comparative analysis of the procedural similarities and differences between airport strategic planning and other forms of airport planning.</td>
</tr>
</tbody>
</table>

(Source: ACRP REPORT 20)(2009)

3.10 Discussion

The change in the production and service institutions, which resulted from the internal and external environmental influences, has led to an increase in the
complexity of these institutions. These changes require different thinking and more caring in applying the principles of quality management which include many modern concepts such as customer focus, continuous improvement, strategic planning for quality and good leadership.

Due to these changes in the different business environments, both in terms of increasing complexity or competition, strategic solutions are required. One of the most important solutions is the adoption of integrated systems of quality with strategic planning. These meet the need of the institution to face rapid changes and increase competition under the open market.

Strategic Quality Management (SQM) is one of the most important integrated systems that combine strategic planning and quality management, that is to say, quality thinking with a strategic perspective.

Based on the study of literature which has been presented in this chapter, all of following authors Tummala, 1994, Srindhi, 1998, David, 2009 and Paraschirescu & Caprioara, 2014 have attempted to develop the aspect of strategic quality management. However insufficient attention is devoted to identifying the relationship between strategy and quality within the institutions. Therefore, the first and fourth research questions have arisen, the first question "What is the general understanding of the concepts of strategic quality management?" and the fourth question "What are the key factors influencing the integration of quality management concepts and strategic planning in airport?"

The first question was addressed in chapter one and the fourth question is addressed in chapters six and seven.
Chapter Four: Literature Review – Passenger Operational Processes
Chapter Four: Literature Review – Passenger Operational Processes

4.1 Introduction
In this chapter, a review of the literature is presented in order to provide a theoretical background and to develop an understanding of the significance of operational processes in the airport organization.

In the following sections, services processes were reviewed. Then the service processes in airport organization was discussed for passengers services. Next, it provides a brief background to the significance of the use of Service Blueprinting for airport operations. After that, it reviews the stages of the development of Service Blueprint. Finally giving a short summary of this chapter.

4.2 Service as Process
One of the most distinctive features of services is their process nature. Because services are a linked sequence of events the entire sequence must be well coordinated, with emphasis on the steps that create value for the customer.

Along with the awakening to the domination of services in the world’s economies, there is a growing emphasis in business practice on creating meaningful, memorable customer experiences (Meyer and Schwager, 2007). The importance of customer experience management is not only being touted in consumer markets, but also in business-to-business contexts where research shows meaningful customer experiences and the resulting emotional bonds between customers and suppliers are more important than rational motivations in creating customer loyalty (Crosby and Johnson, 2007).

It is important to note that a comprehensive review of the academic literature on product innovation also reveals little explicit coverage of research on service innovation (Hauser et al., 2006). In this respect, analysis and redesign of service processes becomes an important subject, particularly in advanced quality management approaches such as Six Sigma in which, its service application toolbox needs further development.
Literature review addresses several service process improvement issues including service failures; failure types and impact, profiling service failures, the link between operational factors and customer outcomes, the link between operational processes and financial outcomes, the impact of system reliability on service recovery, an operational framework for service recovery, process improvement, collecting failure data, and analyzing and interpreting failure data (Johnston and Michel, 2008).

An operations analysis is a structured study that (1) identifies each task to be performed and the flow of people and materials through the system, and (2) evaluates the tasks and flows to determine ways in which the process can be simplified and improved. Two simple tools that can guide an operations analysis are a process flow diagram (Jackson et al., 1998; Slack et al., 2001; Markland et al., 1998; Stevenson, 1999; Dilworth, 2000; Juran and Godfrey, 1999) and a process chart (Murdick et al., 1990).

Process charts also can be found in most of the production and operations management handbooks. A process flow diagram is an arrow diagram that shows, step by step the sequence in which a service is performed (or a product is produced) and the correct spending movement of materials, people, or information. Flowcharting will demonstrate the relationships and provide the initial preparation of determining who the supplier is and who the customer is. These charts should be prepared for all subsystems in the organization (Gopalakrishnan et al., 1992).

Process in service refers to the actual procedures, mechanisms, and flow of activities by which the service is delivered, the services delivery and operating systems. When customers enter a service firm they participate in a process. During that process, customers become quasi-employees; that is they are partial producers and they have the opportunity to see the organisation from the employee's perspective.
To use a manufacturing analogy, customers are able to examine 'unfinished goods' – that is faulty and defective goods, glitches in the production system are in full view, with obvious implications for customer enjoyment and satisfaction. In addition, customers interactions with both employees and other customers becomes part of the total service experience with obvious implications for service quality and productivity. Both customers and staff must be educated to effectively use the process. Controlling the service delivery process is more than a simple management issue. The customer's presence in the system means that the service process must be treated as a marketing issue. (Shostack, 1987)

One of the important tools used to improve service processes is "Service Blueprint", which is explained in detail in section 4.6.

There is another important flowchart technique called Process Chain Network (PCN) which was introduced by Sampson (2012). He claims PCN diagrams build on the strengths of other flowcharting techniques, while emphasizing the unique conditions and design opportunities for interactive service processes. The aim of the PCN framework is to illustrate a balanced perspective of the provider-customer relationship and describe the interaction between provider and customer, considering service as a type of resource/process configuration. The involvement of the customer in service production processes increases the complexity of service operation in comparison with non-service operations (Frei, 2006). However, PCN diagrams involve a customer entity and all activities fall in the customer process domain, regardless of whether they are direct, surrogate interaction or independent. The other actor categories are not defined in PCN diagrams such as onstage employees, backstage employees, and support personnel. The main reason is because PCN separates process steps or activities based on whether they involve another entity or not rather than the performer of actions. PCN lacks this important aspect of service design and does not define the physical surroundings of the direct and surrogate interaction regions of customer. (Kazemzadeh et al., 2015).
4.3 Customer Satisfaction and Customer Expectation

The outcome of customers’ evaluation of a service is the satisfaction that based on a comparison of the recognition of service delivery with their previous expectations. (Johnston and Clark, 2005). Thus, a restaurant need to understand the customers’ service expectations (Johnston and Clark, 2001:2005; Ford and Heaton, 2000), that is an essential for delivering greater service because they represent implicit performance standards that customers use in assessing service quality (Andronikidis et al., 2009).

Understanding customer expectations performed an important part for delivering customer satisfaction. Customer expectations include two levels, these are the desired expectation and adequate expectation. Desired expectations represented that the customer wanted the service to perform, what the service “should be”. While adequate expectations are the satisfactory performance that the service “will be” (Yen and Soe, 2010).

4.4 Customer Experience and Service Process

Services are the experience that depends on human and delivery system. Because of the growth of Service Business, the organization should move into the customer experience management. That is the importance of creating customer loyalty by creating meaningful and memorable service. (Bitner et al., 2007). Experience can be determined as the aggregate and increasing customer awareness created during the process of learning about, obtaining and using a product or service (Jiang, 2008). Customer experience has been treated as embedded in service quality. It is also measured by comparing expectations before, and perceptions after the experience, or perceptions only, through different predetermined service attributes (Walter et al., 2010).

4.5 Service process for an airport

There is a great variation in the size of airports; some are small airports that operate a limited number of flights, and others are large airports that are like
small cities offering a wide range of services. However, airports are complex systems because of the large number of sections and multiplicity of processes necessary to run them.

Airport Council International (ACI) has identified the six main processes required to run any airport. Those processes consist of: Access, Check-in, Passport/Personal ID control, Security, Finding your way, Airport facilities and Airport environment. A short description of each is given below:

**Access:** Ground transportation to / from airport, parking facilities.

**Check-in:** Check-in airlines desks

**Passport control:** Passport / Personal ID inspection.

**Security:** Security staff, security equipment.

**Finding your way:** Signs and flight information screens.

**Airport facilities:** Staff, eating facilities, shopping, bank/ATM facilities, Wi-Fi, toilets.

**Airport environment:** Cleanliness of airport terminal, ambience of airport.

### 4.6 Service Blueprint

In service applications, a special kind of flowcharting technique, called 'Service Blueprinting' is used. This technique is similar to the regular process mapping approaches with an exception that the front office and back office are separated by differentiation lines, enabling the analyzer to better investigate the criticality of service on the customer side. Although the technique seems more effective for service applications compared with the common flowcharting approaches, it has not been widely employed. Some of the few investigations include Akamavi (2005) who used service blueprinting for improving the process of opening a student bank account at the Lloyds TSB at a local branch. Kumar and Steinebach (2008) presented a closed-loop mistake-proof operation system for surgery processes that would likely eliminate preventable medical errors.

The design method used was a combination of creating a service blueprint, implementing the six sigma DMAIC (Define, Measure, Analyze, Improve, Control) cycle, developing cause-and-effect diagrams as well as devising poka-yokes (error
proofing) in order to develop a robust surgery operation process for a typical US hospital. They found that implementing service blueprint along with the poka-yokes, will likely result in the current medical error rate to significantly improve to the six-sigma level.

Kumar et al. (2010) used service blueprinting together with Six Sigma DMAIC cycle, cause-and-effect diagrams and Poka-yokes to modify the existing service blueprint to improve the operational process of one online business, Bellacor. They found that implementing their new proposed blueprint will likely result in improved customer service, improved delivery tracking, fewer errors and a better overall experience for the customer.

Service Blueprint is the method of process modeling that is used to visualize, analyze, organize, control and develop service processes for improving the internal and external processes of an organization (Gersch et al., 2011). One of the most distinctive characteristics of services is their process nature (Shostack, 1987).

(Shahin, 2010) describes Service Blueprint as a special kind of flow-chart, which also includes the line of visibility, between customers and service provider. In other words, in Service Blueprint, the line of visibility separates activities of the front office, where customers obtain tangible evidence of the service, from those of the back office, which is out of the customers’ view. The high and low contact parts of the service delivery process are kept physically separate, but they remain linked by communications. Service Blueprint helps the organization to see the key operational, human resources, and marketing issues that easily offer the service experience for the customer (Bitner et al., 2007). According to (Mascio, 2007) Service Blueprinting is the process of creating the delivering service standard that shows the personnel and equipment required. In this research, Service Blueprint is used to determine fail points and waiting times within a service process system, it helps decision makers to figure out critical points in their service.
4.6.1 The Development of Service Blueprint

In 1977 Shostack requested ‘... a framework which accommodates intangibility instead of denying it’ (Shostack, 1977). She argued that ‘Since this service exists only during the time in which it is rendered, the entity’s true ‘reality’ must be defined experientially, not in engineering terms’ (Shostack, 1977). Shostack had realized that products in themselves were not alone creating value to the customers, but also the service related to the products.

To be able to control and develop the service, there was a demand for understanding the structure and to be able to communicate it clearly to others. Even though Shostack (1977) requested to define the service experientially and not in engineering terms, the name of the method, service blueprinting, is ironically very much transmitted from engineering terms.

The need to get an overview of the context and control it (Shostack, 1977) was the background for finding a systematic way to map the situation. It is challenging to discuss and change something that is not commonly perceived, and a point of reference was needed to communicate how the service should be structured and related to its elements.

Shostack (1982) compared the product-service combinations to atoms, connected in unique molecular configurations, and compared how the overall entity of a service would change if the elements were rearranged or altered, as if changing the bonds or atoms in a molecule creates a new substance.

To be able to offer good service, or a combination of a product and service, it is important to both be able to see the service from an overview level and form each element in the delivery to fit into the entirety. This consciousness formed the demand for what Shostack called a service blueprint: ‘What is required is a system which allow the structure of a service to be mapped in an objective and explicit manner while also capturing all the essential functions to which marketing applies; in other words, a service blueprint’ (Shostack, 1982).
Kingman-Brundage stated that ‘Service system blueprints simplify the complexity associated with a service by systematizing it or by revealing systems which are otherwise invisible’ (Kingman-Brundage, 1988).

There has been a surge in articles on adaptations of the basic service blueprint to include new dimensions, and to code complex relationships. Spraragen & Chan (2008) investigated ways of integrating an emotional view of the customer’s experience and expectations in the blueprint. Lee & Forlizzi (2009), propose a way of showing how the service evolves over time in a blueprint. Polaine (2009) explored ways of expanding the contents of service blueprints into what he calls Blueprint+, including emotional and cost aspects. They also suggest a change from the traditional stages to mapping according to characters. The development stages of Service Blueprint are shown in Figure 4.1
Literature review addresses several service process improvement issues including service failures; failure types and impact, profiling service failures, the link between operational factors and customer outcomes, the link between operational processes and financial outcomes, the impact of system reliability on service recovery, an operational framework for service recovery, process improvement, collecting failure data, and analyzing and interpreting failure data (Johnston and Michel, 2008).

The main benefits of the method concern facilitating service improvement and innovation. Service blueprinting is by design customer-oriented, which sets it apart from other process-based designing tools. This makes it particularly useful in visualizing customer perspective and developing customer experience. As the scope of a blueprint can be changed depending on its usage, blueprinting can be adapted for both micromanagement (e.g. quality improvement) and strategic level planning. (Bitner et al., 2008)

Although these authors have attempted to develop the Service Blueprint model with focus on customer experience, these attempts remain insufficient from the researcher’s point of view, because the customer’s needs and expectations at the beginning of the service, as well as measuring customer satisfaction at the end of service weren’t presented. Therefore, this study focused more on developing this model by focusing on customer experience that includes customer needs and satisfaction. In addition, work on linking this model within the strategic quality management framework which will be applied to the airports sector to ensure the integration of quality management concepts into strategic planning steps.

4.6.2 The Components of Service Blueprint

Coenen et al. (2011) defines a service blueprint as “…visually displays activities by simultaneously depicting the process of service delivery, the points of customer contact, the roles of customers and employees, and the physical surrounding of the perceived process”.

A typical service blueprint consists of five components (Bitner et al., 2007):
1) Physical evidence: All the activities carried out by individuals and units within the company who are not contact employees.

2) Customer actions: All of steps that show the customers’ activity.

3) Onstage/visible contact employee actions: Face-to-face actions between the customers and employees.

4) Backstage/invisible contact employee actions: All of the employee actions, but the customer can’t see.

5) Support processes: All the tangibles that customers are exposed to that can influence their quality perceptions.

Figure 4.2 shows the basic composition of Service Blueprint.

4.6.3 Building Service Blueprint

Before building a service blueprint some prerequisites should be met. A common mistake is to give the responsibility of the build to one functional area or even to one individual. This will not work - the process should involve all stakeholders relevant to the service, not forgetting customer information. (Zeithaml & Bitner, 2003) For bigger and more time-consuming projects, strong support from management is often needed to ensure all relevant departments and individuals participate. (Bitner et al., 2008) The process of building a service blueprint can be divided into six parts. These are listed in Figure 4.3
The mapping of the blueprint is started by depicting all the actions customer performs and everything that he experiences during the service. (Zeithaml & Bitner, 2003). This is done to ensure that the focus of the work stays on the customer instead of steps that happen inside the organization and thus have no customer contact. It has been found challenging to delineate when a service actually starts and ends from the customer’s point of view. (Bitner et al., 2008)

The core concepts of Service Blueprint are shown below in Table 4.1 Which were defined earlier, with their precise definitions to complete the first step of the conceptual evaluation.

Table 4.1 Concepts of Service Blueprint (Bitner et al., 2008)

<table>
<thead>
<tr>
<th>Concept</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;Action&gt;</td>
<td>Actions that customer, onstage personnel, backstage personnel (or systems), support and management perform in a service process (Milton &amp; Johnson, 2012).</td>
</tr>
<tr>
<td>&lt;Actor Categories&gt;</td>
<td>Actor categories are customer, onstage personnel, backstage personnel and systems, support and management (Bitner et al., 2008)</td>
</tr>
<tr>
<td>&lt;Action Flow&gt;</td>
<td>Action Flow presents the sequence of actions by an actor (Milton &amp; Johnson, 2012).</td>
</tr>
<tr>
<td>&lt;Communication Flow&gt;</td>
<td>Communication Flow presents the flow of communication between any actors in the service</td>
</tr>
</tbody>
</table>
### Concept | Definition
---|---
Line of Interaction | Line of Interaction is an interface between customer and frontline employees (systems) (Bitner et al., 2008).
Line of Visibility | Line of Visibility is an interface between onstage and backstage employees (systems) (Bitner et al., 2008).
Line of Internal Interaction | Line of Internal Interaction is an interface between backstage employees (systems) and support employees (systems) (Bitner et al., 2008).
Line of Order Penetration | Line of Order Penetration is an interface between customer induced actions and customer independent actions (FlieB & Kleinaltenkamp, 2004).
Line of Implementation | Line of Implementation is an interface between support employees (systems) and managerial actions (Bitner et al., 2008).
Props and Physical Evidence | Props and Physical Evidence are all the tangibles that customers see during the service process and influence the customer’s perception of quality (Bitner et al., 2008).

Since the 1980s, service marketers and managers have been using Service Blueprinting to visualise a service delivery process. PCN supports some but not all of the concepts in Service Blueprinting. Despite PCN fully supports action, action flow, and communication flow from Service Blueprinting. Partial support was found for line of interaction, actor categories, and physical evidence. PCN does not fully cover the defined lines in Service Blueprints. Specifically, PCN
covers line of interaction partially, but does not provide any tools to support the line of visibility, or the line of internal interaction. PCN diagrams also lack any direct reference to physical evidence. However, PCN offers a promising way forward to represent the complexities of contemporary service processes. Strengthening PCN with relevant aspects of Service Blueprinting will help the promise to be realised. (Kazemzadeh et al., 2015).

4.7 Criticism
To better understand the limitations of the blueprinting method, the cons and potential pitfalls of the tool should be considered. Johnston (1999) notes that while service blueprinting has evolved into a tool that aims for customer focus, it still is oriented towards the service fulfilment process. As the layout still is a chronology of tasks, the model will likely lack in depicting how the customer assesses service quality. While Fliess & Kleinaltenkamp’s (2004) work introduced goes some way into changing the orientation of the service blueprint, the task-oriented nature of it will always be too rigid to truly see how the end customer perceives the service. As an example, it has been discovered that when a service blueprint is used as a basis of evaluation, more subtle interpretations of the service can go unnoticed. (Johnston, 1999)

4.8 Discussion
This chapter presents the operations of an airport for passengers, as well as an explanation of how to build and use the tool selected in this research, which is called "Service Blueprint". It was used by the researcher as a key tool for building, analyzing and establishing passenger service operations in terms of the best practices. In addition to using it for analyzing the processes, it was used at the operational part of the new framework which is the main goal of this research. Based on the study of literature which has been presented in this chapter, the second question has arisen, which refers to " What are the key factors that affect passenger operational processes?". This question is addressed in both chapters six and seven.
5.1 Introduction
This chapter presents the methods that are used to achieve the aim and the objectives of this research. It highlights the different techniques and tools used in this study, and it outlines the research design and how the process developed in order to satisfy the research objectives. The chapter also illustrates how methods are employed and analyzed.

5.2 Background of Research Methodology
Research methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically (Kothari, 2004). According to (Burgess, 2001) Research methodology is the process for which the researcher obtains research participants and collects information from them.

In this study, the researcher adopted fieldwork in order to achieve the aim of the research, which include a qualitative and quantitative approach. Case study and survey approaches were used to develop a deeper understanding of the airport organization.

This research aimed to develop an understanding of the significance of applying SQM practices in the airport sector. SQM means the way of integrating quality management concepts in the context of strategic planning with a focus on operational processes. This aim is achieved through answering the following research question "How can the application of practices of Strategic Quality Management (SQM) be developed to assist airport managers and decision-makers in further developing airports?".

In order to answer this question the research aims to develop a new strategic quality management framework, specifically, it is intended to be applied for Libyan airports, which they are all single-terminal airports and still undergoing development.
In order to answer the research question the following objectives were identified:

**Objective (1)** To explore, through a review of the literature, best practice of strategic quality management, in both manufacturing and service sectors, especially in relation to airport operations management.

**Objective (2)** To determine the key factors influencing passenger operational processes and their relation to the strategic planning of an airport.

**Objective (3)** To determine the factors influencing the passenger service quality using different evaluation methods.

**Objective (4)** To identify the key factors influencing the integration of quality management concepts and strategic planning in an airport.

**Objective (5)** Informed by the results of 1 to 4 above, to develop a new framework to assist decision-makers in applying best practice methods in the strategic quality management in the airport sector.

### 5.3 Research Strategy

A research strategy is the general plan that is used by the researcher in order to answer the research questions (Saunders et al., 2009). Research strategy, according to Remenyi et al. (2003), provides the overall direction of the research including the process by which the research is conducted. Some of the common research strategies used in business and management are experiment, survey, case study, action research, grounded theory, ethnography, archival research, cross sectional studies, longitudinal studies and participative enquiry (Easterby-Smith et al., 2008; Collis and Hussey, 2009; Saunders et al., 2009).

Based on the purpose of this research, multi-case study and survey strategies were selected. The rationale for these selections is that the case study method aims to develop an intensive knowledge about a single case or a few cases and the survey strategy facilitates collecting various opinions and attitudes, as well as getting cause-and-effect relationships.
Chapter Five: Methodology

5.4 Research Approach

Research approaches are plans and the procedures for research that span the steps from broad assumptions to detailed methods of data collection, analysis, and interpretation. There are three main research approaches: qualitative, quantitative, and mixed methods (Creswell, 2014). In this research, the mixed methods approach was adopted to achieve the aim and objectives of the research.

5.5 Research Design

A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure (Ackoff, 1961). Creswell (2003) describes research design as plans and procedures for research that span the decisions from broad assumptions to detailed methods of data collection and analysis. In this research, survey, interviews, observations and historical data have been used in order to gather data from different sources related to the airports selected. Therefore, a questionnaire has been structured and distributed to collect data within Libyan and Irish airports. The data collected was analyzed by using Service Blueprint technique to extract the results needed.

Shannon Airport has received major recognition from the European airline community after being chosen as a winner of the Airport of the Year Award from the European Regions Airline Association (ERA), having secured the prestigious title in 2014 and 2015.

In 2017, Cork airport has been named Airport Council International (ACI) Best Airport in Europe (under 5 million passengers) at the 27th Airports Council International (ACI) Europe General Assembly, Congress and Exhibition, which was attended by over 400 aviation chief executives and industry leaders. Table 5.1. presents the research design and Figure 5.1 illustrates the fieldwork flowchart.
## Table 5.1 The Research Design

<table>
<thead>
<tr>
<th>Stage</th>
<th>Year</th>
<th>Description</th>
<th>Data Collection and analysis Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Literature review</td>
<td>2015</td>
<td>A critical review of existing knowledge on areas such as theories, critiques, methodologies, research findings, assessment and evaluations on airport management, practices of strategic quality management and Service Blueprint.</td>
<td>- Journals,</td>
</tr>
<tr>
<td></td>
<td>To</td>
<td></td>
<td>- Articles,</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td></td>
<td>- Books,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Previous theses and Websites.</td>
</tr>
<tr>
<td>Field work</td>
<td>2016</td>
<td>- <strong>Phase[1]</strong>: Benchmarking case study (1) is to analyze passenger operational processes.</td>
<td>- Site visit (observations),</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- In depth interview,</td>
</tr>
<tr>
<td></td>
<td>2017</td>
<td>- <strong>Phase[2]</strong>: Benchmarking case study (2) is to identify the factors influencing the passenger service quality.</td>
<td>- Service Blueprint,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Hardcopy survey-questionnaire (passengers),</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>- <strong>Phase[3]</strong>: Surveying the management to determine strategic quality management factors which are implemented at the integration of quality management and strategic planning.</td>
<td>- Online survey-questionnaire (managers).</td>
</tr>
<tr>
<td>Framework development</td>
<td>2018</td>
<td>This stage is divided into two steps:</td>
<td>The results from the benchmarking process will be used to develop the framework.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The first step is to construct the framework.</td>
<td>Airport stakeholders were asked their responses about the validation of the framework. This stage was done using a survey questionnaire.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The second step is to validate it.</td>
<td></td>
</tr>
</tbody>
</table>
Chapter Five: Methodology

Fieldwork

**Phase (1)**

Benchmarking Case study no. 1
Passenger operational processes
- Management Interviews; Misurata, Shannon and Cork Airports (24 respondents)
- Online survey-questionnaire (38 respondents)

**Phase (2)**

Benchmarking Case study no. 2
Passenger Service Quality
Passenger hand-questionnaire Misurata (90 respondents), Shannon (135 respondents) and Cork (602 respondents)

**Phase (3)**

Online Survey-Questionnaire Integration of strategy and quality
6 Libyan airports; Misurata, Tripoli, Benina, Sabha, Al Abraq and Mitiga
5 Irish airports; Shannon, Cork, Dublin, Knock and Kerry
2 Libyan airlines & 2 Irish airlines

The Framework Development

Validation by "Experts Review Method"
Libyan and Irish airports and airlines experts

Revision

Revised Version of Framework

Figure 5.1: Fieldwork flowchart
5.6 The Selection of Methods

The research methods used in any study should reflect and answer the research questions sought to be answered (Yin, 1994). Due to the fact that the area of strategic quality management is not well studied and examined in the literature, answers to the research questions aim to provide a deeper and clearer perception into the area of strategic quality management in the airport business industry. Since the focus of this research is to gain a deeper understanding and insight on a particular subject, this type of study is considered by authors (e.g. Yin 1994; Brewer, 2006) as exploratory research. Exploratory research typically involves case studies, participant or non-participant observational techniques, and collection and analysis of historical data, while quantitative and qualitative techniques may be involved (Brewer, 2006).

In order to achieve the aim and the objectives of this research, a number of criteria are addressed to select methods for the research. It is important that the selection of research methods should allow the researcher to relate the findings from the literature to the airport industry.

The literature review has shown that it is important to study the different external and internal factors, as well as the strategic methods that could have direct impacts on airports and their competitive strengths. This can be achieved through gaining direct access to an airport organization in order to better investigate the issue and to capture its best practice and experience. Taking into account these criteria led the researcher to use the case study in the research methodology.

The case study method is often used to study a single organization in order to identify factors involved in specific aspects or behaviour (Ghauri and Gronhaug, 2005). The development of a case study provides the researcher with different sources that could be used as evidence. The case study is essentially a detailed account of a particular example of a phenomenon, experience, event or situation (Brewer, 2007). Scapins (1990, cited in Brewer, 2007) argues that the case study may be appropriate in a number of situations including cases where:
1. The objective is restricted to describing current practice.
2. Existing theories are used to understand and explain what is happening.
3. The research examines the difficulties in implementing new methods or techniques in an organization or industry.
4. The research intends to illustrate new practices that have been adopted by a particular industry.
5. There is insufficient knowledge to enable hypotheses to be established and/or where there is lack of theorization.

In this research, conducting a case study can be useful based on situations (2), (4) and (5) above which have been involved. Therefore, in this research, it was decided to undertake multi-case studies in order to reflect the exploratory nature of the research. The use of the case study is considered as a logical and appropriate research method that could be used to undertake this exploratory research.

5.7 The Selection of The Case Study

Giving the fact that multi-case study is used in this research, it is very important that the chosen case study is carefully selected in order to fulfil a number of criteria and research prerequisites, which was presented in situations (2), (4) and (5) in the previous section (5.6).

This research was carried out in three major phases: a benchmarking study of passengers processes, a benchmarking study of passenger service quality factors and a survey-questionnaire for the integration of quality and strategy in the airport sector. The Libyan and Irish airports were chosen to be the scope of this study because they represent two different airport regions dealing with passengers. The two benchmarking studies were conducted in three single-terminal airports.

Misurata airport is in Libya, according to the study of (Eshtaiwi et al., 2017) was selected as the best airport in terms of performance among the Libyan airports.
Chapter Five: Methodology

Shannon Airport has received major recognition from the European airline community after being chosen as a winner of the Airport of the Year Award from the European Regions Airline Association (ERA), having secured the prestigious title in 2014 and 2015. In 2017, Cork airport has been named Airport Council International (ACI) Best Airport in Europe (under 5 million passengers) at the 27th Airports Council International (ACI) Europe General Assembly, Congress and Exhibition, which was attended by over 400 aviation chief executives and industry leaders.

The ACI EUROPE Best Airport Awards are presented to airports for excellence and achievement across a whole range of disciplines including:

- Retail
- Community Relations
- Facilities
- Customer Service/Passenger & Airlines
- Security
- Environmental Awareness
- Operations

5.8 Data Collection Methods

Kothari (2004) states that the task of data collection begins after a research problem has been defined and the research design/plan chalked out. Anything that becomes a means of collecting information for a study is called a “research tool”. For example, questionnaires, interviews and observation are all classified as research tools (Kumar, 2005). Once the research objectives have been identified the data sources have been previously selected which were mainly related to airport management, staff, stakeholders, passengers, and airlines. Interviews, questionnaires and observations have been used to collect data.
5.8.1 Secondary Data

Secondary data is information collected by others for purposes, which can be different than those of the researcher. It is a synthesis of published and unpublished documents related to the research and it is of high importance, as it comprises the logical framework of the research (Sekaran, 2003; Fink, 1995). The collection of secondary data has both advantages and disadvantages, one of the foremost advantages of using secondary data is that it helps the researcher formulate and understand better the research problem, broadening at the same time the base for scientific conclusions to be drawn. Nevertheless, it should be taken under consideration that other researchers, organization or government departments for studies with different objectives and purposes collected the data; therefore, it might not be suitable for the current research. For the purpose of this study, the collected secondary data included: textbooks, academic articles and journals related to the implementation of SQM. Also, a number of online resources were used to get information for the literature review.

5.8.2 Primary Data

Primary data is the information gathered directly from the researcher, when secondary data is not available or is unable to contribute to meeting research objectives (Sekaran, 2003). The collection of primary data involves the use of research instruments, such as questionnaires and interview schedules that have been constructed exclusively for the purposes of a specific study. For the purposes of this research, primary data were collected by questionnaire and interviews. The essence for this was to weigh the different views of groups in each airport or airline studied in the research. The main concern of a researcher is to ensure that the results of the research are accurate and applicable. Therefore, once the methods used for the conduction of the research are ready, then the validity of the measures can be established (Sekaran, 2003).
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5.8.2.1 Reliability of Primary Research
Reliability refers to the consistency of the results obtained from the instrument used in the research. Reliability is achieved when the same research process is repeated and reproduces results within stated confidence limits. Bells (1993) cited in (Eriksson, 2002) states that the reliability of an investigation is satisfying if another researcher can conduct the same research and draw the same conclusions. This has to do with the ability of a research finding to be reproduced itself if a parallel study is conducted.

5.8.2.2 Validity of Primary Research
Validity represents ‘the extent to which an instrument measures what it intended to measure’. This research used past findings on the effects of SQM on organizational performance served as a basis for selecting variables used for establishing the effects of SQM implementation in the airport industry. Validity here is established through published measures for the concept of SQM.

5.8.3 Questionnaires
A questionnaire is a research instrument consisting of series of questions and other prompts for the purpose of gathering information from respondents. The choice of the questionnaire as one of the means of gathering data is borne out of the fact that it is cheap, does not require as much effort from the questioner as verbal or telephone surveys, not time consuming and often have standardized answers that make it simple to compile data. It allows the respondents to supply answers that are confidential to them. These questionnaires are sent directly to the respondents by the researcher which gave the researcher the privilege to introduce the topic and encouragement in answering the questionnaire.

Two different questionnaires were structured for this research. The first questionnaire was administered to the managers at Libyan and Irish airports as well as Libyan and Irish airlines. The questionnaire consisted of four major parts, which focuses on the areas of interest of the research. (as shown in appendix III)

- The first part relates to the sample demographics.
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- The second part relates to factors influencing the integration of quality management and strategic planning.
- The third part relates to how to build a new framework of strategic quality management for the airport sector.
- The fourth part relates to components of passenger operational process and its sequence.

The second questionnaire was administered to the passengers at three airports, one of them is in Libya and the others are in Ireland. The questionnaire is used to assess passengers service quality. It consists of criteria which were developed by the Airport Council International (ACI). It was divided into six main categories, each category includes a number of subcategories. (as shown in appendix IV). The questionnaires consist of closed ended and open ended questions. Open-ended questions are questions to which there is not one definite answer. Open-ended questions may be a good way to break the ice with a survey, giving respondents an opportunity to answer in their own words. The responses to open-ended questions can be very useful, often yielding quotable material, and the drawback to open-ended questions is that the responses are more difficult to catalogue and interpret (Fink, 1995).

Closed-ended questions have a finite set of answers from which the respondent chooses. One of the choices may be "Other." It is a good idea to allow respondents to write in an optional response if they choose "Other." The benefit of closed-ended questions is that they are easy to standardize, and data gathered from closed-ended questions lend themselves to statistical analysis (Fink, 1995). The down side to closed-ended questions is that they are more difficult to write than open-ended questions. This is because the evaluator must design choices to include all the possible answers a respondent could give for each question. The closed ended questions helped the researchers to analyze the information gotten without difficulties using a 5 point Likert scale (The Likert Scale is an ordered, one-dimensional scale from which respondents choose one option that best aligns with their view). The questionnaire was validated during
consultation of two academics and one aerodrome expert. Based on their comments on the questionnaire, the researcher then revised it in its final form. This validation was carried out for all questionnaires used in this research, which included: the passenger questionnaire, the management questionnaire.

The Advantages & Disadvantages of a Self-Completion Questionnaire

Self-completion questionnaires were used to collect information from the general population and consumer groups. Typical advantages of this type of survey are low costs and that respondents appreciate anonymity. On the other hand, there is no guarantee that enough surveys will be filled in to form an accurate view of the research group.

Cost

Self-completion questionnaires are the cheapest method of collecting information from large numbers of people. This is a key advantage for researchers, especially in the case of government surveys, such as a census, when information is gathered across the entire nation. Clearly, there are costs -- for printing, postage and collation of the completed questionnaires -- but these are much lower than the cost of paying interviewers to help respondents fill in questionnaires.

Anonymity and Bias

Anonymity is an advantage for both researchers and respondents. This is especially true if the research topic is of a sensitive nature. Respondents are more likely to answer honestly if they don't have to reveal identifying information. Postal surveys offer respondents a better guarantee of privacy contrasted with online surveys, where respondents are traceable. Another advantage of self-completion surveys is that the researcher can't influence the respondents' answers by using their voice or facial expression to imply that a
particular answer is the "right" one. Therefore, survey results won’t show interviewer bias.

**Response Rate and Time**

One of the most significant disadvantages is the lack of control over response rate, which can be as low as 20 percent. Unless respondents are offered an incentive to answer questions and return the survey, such as being entered into a prize drawing, questionnaires can end up in the garbage with unsolicited mail. Receiving questionnaires after the completion deadline is another issue that makes this research method problematic, especially if time is an issue.

**Inaccurate Information**

The researcher has no control over who fills in the questionnaire, or whether any attempt is made to answer questions accurately as opposed to ticking boxes at random. Anyone at the mailing address may have picked the form up and filled it in. This potentially makes it more difficult for the researcher to get a true impression of a particular age group or gender.

**Customer Review (Airport website)**

A customer review is a review of a product or service made by a customer who has purchased and used, or had experience with, the product or service. Customer reviews are a form of customer feedback on electronic commerce and online shopping sites.

Skytrax (originally known as Inflight Research Services) is a United Kingdom–based consultancy which runs an airline and airport review and ranking site. (AirlineQuality.com)

Skytrax conducts research for commercial airlines, as well as taking surveys from international passengers to rate cabin staff, airports, airlines, airline lounges, inflight entertainment, on-board catering, and several other elements of air travel. (Kossmann, 2006). Skytrax holds an annual World Airline Awards and
Chapter Five: Methodology

World Airport Awards, as well as the ranking for airlines and airports (world airline awards).

Advantages of 5-star airport rating method

1- An easy and inexpensive way to get the views of passengers towards services provided by the airport.
2- Detailed comments can be obtained when using this method.

Disadvantages of 5-star airport rating method

1- Having fewer features and therefore are difficult to rely on to achieve a full experience for passengers towards airport services.
2- Very limited number of responses can be obtained using this method.

5.8.4 Interview

Interviews were also carried out to source information. According to Patton (1990), interviews could be based on:

a. Informal conversational interviews - where the questions emerge from the immediate context and are asked in the natural context.

b. Interview guide approach - where topics and issues are specified in advance but where the sequence is decided by the interviewer.

c. Closed fixed response interview - where questions and response categories are fixed and determined in advance.

d. Standard open ended interviews - where the wordings and sequence of questions are determined in advance.

Management structured interview (interview guide approach) was conducted with 24 airport and airlines managers so as to find out the following:-

1. Their view on SQM implementation in their organizations.
2. The effectiveness of their quality approach to their service.
3. Hindrances to the full implementation of SQM.
Chapter Five: Methodology

The interviews conducted were structured so as to enable the researcher to obtain clarifications of some variables which needed further in-depth investigation. An informal mode of interview was carried out because of the sensitivity of some of the issues and also for the need to remove bias on the part of the respondents who might present false information in order to put their companies in better light just to earn some credibility.

5.8.5 Population and Sample
Sekaran (2003) describes sampling as the process of selecting a sufficient number and the right type of elements for study from a certain population. As population is defined, the entire group of elements that the researcher is interested to investigate. An element on the other hand, is a single member of the population (Jankowicz, 1991). Sample is defined as a portion or subset of the population, the size of which is determined by the type and objective of the study, as well as time and financial constraints (Fink, 1995). Sampling therefore is the method of drawing the sample and it is a vital part of research as it allows the researcher to generalize findings, as it is impossible to examine the whole population (Frankfort-Nachmias and Nachmias, 1996). Samples were not drawn from the entire population of study (responsible staff in an airport and the total number of passengers per day) in this research due to time, financial and human resource constraints, thus it is believed that the sample will provide the researcher with more reliable results. (Sekaran, 2003; Blumberg et al., 2005).

In this study, there are two different samples, the Convenience Sample method has been adopted for the assessment of passenger service quality, which is a type of non-probability sampling method where the sample is taken from a group of people easy to contact or to reach. For example, standing at a mall or a grocery store and asking people to answer questions would be an example of a convenience sample. This type of sampling is also known as grab sampling or availability sampling. There are no other criteria to the sampling method except that people be available and willing to participate. This type of sampling method
Chapter Five: Methodology

does not require that a simple random sample is generated, since the only criteria is whether the participants agree to participate. (Saunders et al., 2009). The survey-questionnaire was designed and distributed to identify the views of passenger at Misurata, Shannon and Cork airports towards the service provided. 300 questionnaires which is up to 10% of daily passengers at each airport. These questionnaires were distributed to each of the studied airports.

**Purposive Sampling**, is a nonrandom technique that does not need underlying theories or a set number of informants. Simply put, the researcher decides what needs to be known and sets out to find people who can and are willing to provide the information by virtue of knowledge or experience (Bernard, 2002; Lewis & Sheppard, 2006). In this study, purposive sampling was used for the strategic quality management survey, where the members for a sample are selected according to the purpose of the study, i.e. the researcher was studying the key factors influencing the integration of strategy and quality in an airport. Only specific managers can be the best respondents for this study as they have experience in their departments. The study population was drawn from airports and airlines in Libya and Ireland. There are three different sample.

The first sample was drawn from airports and airlines in both Libya and Ireland. (88) questionnaire were distributed to airports and airlines in Libya and Ireland, 36 questionnaires were distributed to Libyan airports, 30 questionnaires were distributed to Irish airports, 12 questionnaires were distributed to Libyan airlines and 10 questionnaires were distributed to Irish airlines. 38 usable responses (43%) were collected.

The survey-questionnaire was designed and distributed to identify the views of managers at Libyan and Irish airports about how to integrate strategic planning and concepts of quality management and its relationship to operational processes. Those staff members are: Security Director, Passport Control Manager, Registration Manager, Customs Director, Air Transport Manager, and Strategy Manager. In addition to those people, the sample included the operation station manager at the Libyan airlines, Afriqiyah Airways, Ryanair
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airlines, Aer Lingus airlines. The survey-questionnaire was divided into four sections, the first section contained the respondent’s demographic data. The second section included the factors affecting the integration of strategic planning and quality management concepts. Section three was concerned with the respondents' views on how to include strategic quality concepts in strategic planning stages. The fourth section included the factors influencing passenger service processes. A five-point Likert scale from 1= strongly disagree to 5= strongly agree was used in both questionnaires above.

The third sample that was selected for conducting interviews with responsible staff members in the three studied airports, Misurata airport in Libya and Shannon and Cork airports in Ireland. Six managers at each airport were selected to be interviewed, they are: Security Director, Passport Control Manager, Registration Manager, Customs Director, Air Transport Manager, and Strategy Manager. In addition to those people, the sample included the operation station manager at the Libyan airlines, Afriqiyah Airways, Ryanair airlines, Aer Lingus airlines. It means that the sample size is 24 managers were asked. Figure 5.2 illustrates the samples plan.
Chapter Five: Methodology

**Passenger Service Quality**

- **Passenger Survey-questionnaire**
  - Misurata airport: Sent out (300), Got back (90) (30%)
  - Shannon airport: Sent out (300), Got back (135) (45%)
  - Cork airport: Sent out, Got back (602)

**Passenger Operational Processes**

- **Management Structured Interview + Survey – questionnaire**
  - Interviewees:
    - At airport:
      - Operations manager
      - Security manager
      - Passport control manager
      - Strategy director
      - Customs manager
      - Registration manager
    - At airlines:
      - Operation station manager
  - Misurata airport: (6)
  - Shannon airport: (6)
  - Cork airport: (6)
  - Libyan airlines: (1)
  - Afriqiyah airways: (1)
  - Ryanair airlines: (2)
  - Aer Lingus: (2)
  - **Total interviewees**: (24)

**SQM Factors Survey**

- **SQM Survey-questionnaire**
  - Libyan airports: Sent out (36), Got back (23)
  - Irish airports: Sent out (30), Got back (10)
  - Libyan airlines: Sent out (6), Got back (2)
  - Afriqiyah airways: Sent out (6), Got back (1)
  - Ryanair airlines: Sent out (5), Got back (1)
  - Aer Lingus airlines: Sent out (5), Got back (1)
  - **Total managers**: (88) (43%)
  - **Total usable responses**: (38)

Figure 5.2: Research Sample Plan
5.9 Processing and Analysis of Data

The data, after collection, has to be processed and analyzed in accordance with the outline laid down for the purpose at the time of developing the research plan. This is essential for a scientific study and for ensuring that all relevant data are available for making contemplated comparisons and analysis (Kothari, 2004). In this thesis, research methodology is based on field work, which consisted of two benchmarking case studies. These case studies included the use of the Service Blueprinting technique as well as service quality factors in order to present the optimum passenger service processes in the framework. In addition to conducting case studies, a strategic quality management survey was carried out in order to identify the relations between two existing models of strategic management and the concepts of strategic quality management to be presented as a part of the proposed framework. Research tools consisting of an extensive interview was used to question members of the airport and airlines management team, as well as the survey questionnaires to gather data from airport, airline members of staff and passengers.

5.10 The Framework Development

The most accepted definition for a framework is: "a framework is a set of classes that embodies an abstract design for solutions to a family of problems" (Johnson et al., 1988). Another good definition is "a framework is a reusable design of all or part of a system that is represented by a set of abstract classes and the way their instances interact". (Mattsson and Bosch, 1999).

In this research, the new framework was developed based on a number of main phases that have been adopted in the early stage of this research. These were used as a methodology in developing the framework for strategic quality management which concerns the integration of quality management concepts into strategic planning. These phases include the literature review, and benchmarking case studies. The results from these were used in a benchmarking study which provide a more detailed and in-depth analysis of the airport sector.
Chapter Five: Methodology

The proposed framework contains six stages of strategic management and they rely on seven core concepts of strategic quality management that have been promoted by quality gurus in the strategic section. These initial procedures can be helpful to build a new framework in terms of the view of the researcher which is a focus on service processes improvement within the integrated strategic quality management framework. (see appendix III).

5.11 Validity

In terms of measurement procedures, therefore, validity is the ability of an instrument to measure what it is designed to measure: ‘Validity is defined as the degree to which the researcher has measured what he has set out to measure’ (Smith, 1991). According to Kerlinger (1979), the commonest definition of validity is epitomised by the question: Are we measuring what we think we are measuring? Babbie (1989) writes, ‘validity refers to the extent to which an empirical measure adequately reflects the real meaning of the concept under consideration’. These definitions raise two key questions: (1) Who decides whether an instrument is measuring what it is supposed to measure? (2) How can it be established that an instrument is measuring what it is supposed to measure?

5.11.1 Validation of Research Methods

The research methods used in any study should reflect and answer the research questions sought to be answered (Yin, 1994). Due to the fact that the area of strategic quality management is not well studied and examined in the literature, answers to the research questions aim to provide a deeper and clearer understanding of the area of strategic quality management in the airport business. Since the focus of this research is to gain a deeper understanding and insight on a particular subject, this type of study is considered by authors (e.g. Yin, 1994; Brewer, 2007) as exploratory research. Exploratory research typically involves case studies, participant or non-participant observational techniques,
and collection and analysis of historical data, while quantitative and qualitative techniques may be involved (Brewer, 2007).

In order to achieve the aim and the objectives of this research, a number of criteria are addressed to select methods for the research. It is important that the selection of research methods should allow the researcher to relate the findings from the literature to the airport industry. The literature review has shown that it is important to study the different external and internal factors, as well as the strategic methods that could have direct impacts on airports and their competitive strengths. This can be achieved through gaining direct access to an airport organization in order to better investigate the issue and to capture its best practice and experience. Taking into account these criteria led the author to use the case study in the research methodology.

Therefore, in this research, it was decided to undertake multi-case studies in order to reflect the exploratory nature of the research. The use of the case study is considered as a logical and appropriate research method that could be used to undertake this exploratory research.

5.11.2 Validation of The Proposed framework

Broadly speaking there are three approaches to model validation and any combination of them may be applied as appropriate to the different aspects of a particular model. These approaches are: Expert intuition (Delphi methods), real system measurements and theoretical results/analysis (Hillston, 2003). Aravindan and Devadasan (1996) have used a real system to validate their model. (Kelly, 2010) and (Hale, 2015) have adopted expert review process that involve the peer review of the system framework by experts in the application domains of the framework. In this study Expert Review was applied. Hallowell (2008) argues that they are appropriate when validation by testing is highly impractical and immediate confirmation of the results of validation is not possible.
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According to the recommendations of adopting quality factors to validate the proposed framework citing a number of books, peer reviewed journals and standards (ISO/IEC 25021, 2006, ISO 9241-210, 2010, Stanton and Baber, 1996, Moody and Shanks, 2003, Beecham et al., 2005, Kelly, 2010 and Hale, 2015), the researcher adopted a ‘quality’ perspective which is the appropriate way for this research in order to validate an integrated framework in the airport sector. The positional users of the proposed framework are identified as those people involved in using the data model, and who therefore have an interest in its quality. An independent online survey-questionnaire was used to collect the views of the selected experts as presented in Appendix V.

5.12 Summary

This chapter detailed the methodology employed in conducting the fieldwork. The results of the fieldwork with the findings from the literature review supported each other in the integrated approach, and a new framework for strategic quality management for airport was proposed. This framework reflects an integrated approach to manage the security, safety and quality in the airport sector. The findings of the fieldwork are presented in Chapter 6, while Chapter 8 contains the validation process of the proposal framework.
Chapter Six: Presentation, Analysis and Discussion of The Findings of field work.
Chapter Six: Presentation, Analysis and Discussion of The Findings of field work

6.1 Introduction
This chapter is the representation of field work results which were carried out in different airport organizations. The three phases of field work are included which entails two benchmark case studies, and a survey of managers at airports and airlines in Libya and Ireland.

The first phase is giving information about results of benchmarking case study(1), which is basically about exploring and analyzing the current activities that are taking place at the airports; these activities get started from passenger’s time of arrival to the first-time passenger’s interaction with airport staff, it’s security inspection and the final gates. The second phase gives the results of benchmarking case study(2), which focuses on studying the factors that are affecting customer satisfaction and critical service processes. The third phase of the field work presents the results of the survey questionnaire conducted to extract the manager’s viewpoint at airports and airlines, which is in relation to the factors that basically influence an integration of quality and strategy at airports.

6.2 Sampling Plan
The sampling plan detailed three main sampling phases, which are (1) sampling unit- choose the population; (2) sample size-number of members in the population; and (3) sampling procedure-method to select the members of population. In this study the sample unit was identified as the single-terminal airport in both Libya and Ireland. The sample plan was described and illustrated in detail in chapter five section 5.8.5. and Figure 5.2. The stakeholders of airport organization were selected to be questioned, they are passenger and responsible staff members in airports and airlines.
Chapter Six: Presentation, Analysis and Discussion of The Findings of field work

6.3 Benchmarking case study no.1 – Passenger operational processes

6.3.1 The aim and objectives
This case study aims to investigate how airports manage their passenger operations processes, and to what extent the airport adopted the international standards which are issued and updated continuously by the international aviation bodies such as the International Airport Council (IAC).

For achieving the aim of this case study, three objectives have been identified. The first objective is to identify how many stages of services should passengers pass through in both Libyan and Irish airports. The second one is to analyze the activities that should be included in each process of passengers service. The third is to determine the key factors influencing effectiveness of existing passenger's service processes.

6.3.2 The selection of the case study
For the case study no. 1, and since the study aims to benchmark airports, it is very important to choose at least two airports such that one is in the airport undergoing development in which the framework will be applied.

In an airport, the operations management of the passenger service is a responsibility distributed among several departments, the most important of which is the security department. In addition, registration station, passport and immigration department as well as customs department. Therefore, in order to be comprehensive in analysis it is critical to conduct the study in all the mentioned departments. In this case study, it is preferable to interview people who have a responsibility, because they have sufficient experience in the activities that are administered in those departments. This case study was carried out in the three international airports in two different contexts, Libya and Ireland. Those airports represent two different models of airport operations in terms of dealing with passengers.
Chapter Six: Presentation, Analysis and Discussion of The Findings of field work

Misurata Airport is an international airport serving Misurata, a Mediterranean coastal city in the Misurata District of Libya. It also acts as an airbase and training center for the Libyan air force. The runway length is 3400 meters (11,155 ft). Misurata airport handled 500,000 passengers in 2018. It was selected as the best airport among the Libyan airports during 2017 according to (Eshtaiwi, 2017). However, Libyan airports are still undergoing development. Misurata airport operates limited destinations across the world, the main destinations are Istanbul, Malta, Tunis, Sfax, Khartoum, Alexandria and Jeddah.

In contrast, Irish airports are developed. Most of them gained awards during the last few years. Shannon and Cork airports are Irish airports, they were selected to be studied in this research. Shannon and Cork airports were chosen for the following reasons:

- Single-terminal airports.
- Number of passenger per year less than 5 million.
- They have received awards in recent years.

Shannon Airport is one of Ireland’s three primary international airports, along with Dublin and Cork. In 2018, 1,677,661 million passengers passed through the airport, making it the third-busiest airport in the country after Dublin and Cork. Shannon Airport is located in Shannon, County Clare, and mainly serves Limerick, Ennis, Galway and the south-west of Ireland. The longest runway in Ireland, at 3,199 meters (10,495 ft), is located at Shannon, which was a designated landing site for the Space Shuttle. Shannon airport operates several destinations across the world, the main destinations are The UK, EU and USA.

Shannon Airport has received major recognition from the European airline community after being chosen as a winner of the Airport of the Year Award from the European Regions Airline Association (ERA), having secured the prestigious title in 2014 and 2015.

Whilst, Cork airport is located in the southernmost of the country, it is the second busiest airport behind Dublin airport.
Chapter Six: Presentation, Analysis and Discussion of The Findings of field work

Cork Airport is the second-largest of the three principal international airports in the Republic of Ireland, after Dublin and ahead of Shannon. It is located 6.5 km (4.0 mi) south of Cork city in an area known as Farmers Cross. In 2017, Cork Airport handled over 2.3 million passengers, a 3% annual increase. Cork is the state's second-busiest airport in terms of passenger numbers, after Dublin, and fourth busiest on the island of Ireland, after Dublin, Belfast International and Belfast City. Cork airport operates several destinations across the world, the main destinations are the UK, EU and USA. In 2017, Cork airport has been named Airport Council International (ACI) Best Airport in Europe (under 5 million passengers) at the 27th Airports Council International (ACI) Europe General Assembly, Congress and Exhibition, which was attended by over 400 aviation chief executives and industry leaders.

Table 6.1 A summary of rationale of selecting studied airports.

<table>
<thead>
<tr>
<th>Airport</th>
<th>Reasons</th>
<th>Capacity / Size</th>
<th>No. of Terminals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Misurata</td>
<td>Best Libyan airport in 2017 (Eshtaiwi et al., 2017)</td>
<td>&lt; 5 M PAX</td>
<td>Single</td>
</tr>
<tr>
<td>Shannon</td>
<td>The prestigious title in 2014 and 2015</td>
<td>&lt; 5 M PAX</td>
<td>Single</td>
</tr>
<tr>
<td>Cork</td>
<td>Best Airport in Europe (under 5 million passengers) in 2017</td>
<td>&lt; 5 M PAX</td>
<td>Single</td>
</tr>
</tbody>
</table>

6.3.3 The case study design

A classification issued by Airport Council International (ACI) was used as a reference for passenger and cargo service operations at the airport. The researcher adopted Service Blueprint as a tool to analyze passenger’s service operations in order to determine three main elements: (1) what stages of services should passengers pass through in both Libyan and Irish airports. (2) the
activities that should be included in each process of passengers service. (3) the key factors influencing effectiveness of existing passengers service processes.

To conduct this case study, a number of diagnostic techniques were used. These included interviews, questionnaires and observations. A series of interviews were conducted with managers of targeted departments as mentioned above to ensure that the airport applies the steps stipulated by Airport Council International (ACI). Therefore, those interviewees included operation manager, security officer, strategy director, passports and immigration director and customs manager.

The responsible staff members in the studied airports, Misurata airport in Libya and Shannon and Cork airports in Ireland were selected to be interviewees. Six managers from each airport, they are: Security Director, Passport Control Manager, Registration Manager, Customs Director, Air Transport Manager, and Strategy Manager. In addition to those people, the sample included the operation station manager at the Libyan airlines, Afriqiyah Airways, Ryanair airlines, Aer Lingus airlines. It means that the sample size was 24 managers.

6.3.4 The findings of the case study

Through using Service Blueprint, the passenger operations processes were presented and analyzed for the selected airports in both Libya and Ireland.

The findings of the case study were divided into three phases, the first phase is for determining the current stages of passengers services in both Libyan and Irish airports, the second phase relates to identifying the activities included in each stage, and the third phase relates to determining factors influencing the effectiveness of passengers operations in both Libyan and Irish airports. Figure 6.1 shows passenger operational processes case study flowchart.
Chapter Six: Presentation, Analysis and Discussion of The Findings of field work

Case Study no. 1
Passenger Operational Processes at Misurata, Shannon and Cork

- Identifying factors influencing the effectiveness of passengers operations
- Identifying the activities included in each stage.
- Determining the current stages of passenger services

Figure 6.1: Passenger operational processes case study flowchart

The findings of the case study show that there are some similarities and differences in dealing with passenger through their journey with the airports in both the Libyan and Irish context, whether in the number of stages of service or in the equipment and techniques used.

The researcher was able through visiting all airports selected, to conduct structured management interviews and carry out a survey-questionnaire then analyzing and displaying the stages of service passengers using the Service Blueprint tool. The results of the study showed that there are a number of differences between the airports studied in how to deal with passengers, whether it related to the security inspection and the registration of passengers, or car parking. Visits to the selected airports were conducted and involved all areas including car parking, security check points, registrations stations, passports and immigration unit, luggage inspections areas, customs units and airport lounges. Figure 6.2 shows Service Blueprint for passenger processes for Misurata, Shannon and Cork airports.
Chapter Six: Presentation, Analysis and Discussion of The Findings of field work

These differences depend directly on the nature of the country, as well as legislation, whether national or regional. Figure 6.3 and 6.4 present the current stages of passenger service using Service Blueprint.
Figure 6.3: Service Blueprint for the Misurata airport
Figure 6.4: Service Blueprint for The Shannon and Cork airports
Chapter Six: Presentation, Analysis and Discussion of The Findings of field work

According to Figures 6.3 and 6.4, there are a number of differences between the Libyan and Irish airports. These differences include the number of stages of passenger service as well as the components of each stage such as equipment and procedures. For Libyan airports, the passengers pass through security inspection devices before entering the terminal. While at Irish airports, the passengers do not need to be checked at the main gate of the terminal. With regards to the equipment used in security inspection and the use of information systems techniques for registration, Irish airports use more variety of equipment for security inspection, and information technology techniques.

Although there is US immigration unit at Shannon Airport for people who travelling to US. However, the researcher preferred not to mention it in Figure 6.4, because these procedures do not fall under the responsibility of the Irish authorities, as they are carried out by a pure American administration.

6.3.5 Results of benchmarking of passenger operational processes in the Libyan and Irish airports.

The Results of the study indicate that there are differences in the phases and activities of the passenger service between the Libyan and Irish airports. Libyan airports have multiple security checkpoints, the first at the airport lounge access, and the second after passport control. The third is for those arriving. The reason for this is the unstable security situation in the country. Therefore, Libyan airports impose strict security control during departure and arrival. For the Irish airports, passenger operational processes are different, as there is only one security inspection point. This point is after the registration process, where personal inspection is carried out, including cabin bag and hand baggage. It is noted that there is no security inspection of the arrivals, as they were screened by security before boarding the plane in the country of departure. Security inspection is the most important stage of the passenger's service, since the adoption of any airport, whether local or international, must rely primarily on the effectiveness of the security procedures in terms of accuracy and severity. As well as the variety of security inspection devices at the airport.
Despite the importance of providing car parking at the airport, most Libyan airports suffer from a weakness in this aspect. Some Libyan airports have car parking, but they are not suitable in terms of quality and safety.

Irish airports have different types of car parking and they are an important part of the service for passengers and airport users. Car parking is an income source for the airport, this income is used to contribute to the development of the airport and improve the quality of services, in addition, it protects the cars of customers from damage and theft.

Libyan airports have two passport check points, the first on departure and the second upon arrival, while Irish airports have one passport check-in on arrival.

Registration procedures at Libyan airports are weak, often leading to queues in front of registration desks. The reason for this is that most Libyan airlines rely on registrations in the traditional methods (e.g. check-in counters).

As for Irish airports, there are several ways to register, which helps to speed up delivery, and prevent queues. Those methods are for example: the traditional way, online, self-service.

Table 6.2 A comparison between Libyan and Irish airports in terms of passenger operational processes.

<table>
<thead>
<tr>
<th>Stages</th>
<th>Airports</th>
<th>Libyan airports</th>
<th>Irish airports</th>
</tr>
</thead>
</table>
| Security check | Points | There are three security check points:  
- At the entrance  
- After passport control  
- At arrival | There is only one security check point after check-in process |
| | Machines | - Metal Detector  
- X-ray Machine  
- Hand Held Security Scanner | - Metal Detector  
- X-ray Machine  
- Hand Held Security Scanner  
- Detecting Items Hidden on |
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<table>
<thead>
<tr>
<th>Stages</th>
<th>Libyan airports</th>
<th>Irish airports</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check-in</td>
<td>There is only one method to check-in which is traditional method (check-in desk)</td>
<td>There are several methods for check-in,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Check-in desk</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Online</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Self-service</td>
</tr>
<tr>
<td>Passport control</td>
<td>There are two passport control points:</td>
<td>There is only one passport control point which is on arrival.</td>
</tr>
<tr>
<td></td>
<td>- After check-in</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- On arrival</td>
<td></td>
</tr>
<tr>
<td>Customs</td>
<td>Randomly</td>
<td>Randomly</td>
</tr>
</tbody>
</table>

The table above shows that there are differences in most of the passenger service stages between Libyan and Irish airports, the differences are due to the different situations that exist in the comparison countries.

The results of the case study show that there are differences between passenger operations in both the Libyan and Irish airports, at all stages of service and in the equipment and techniques used.

6.3.6 The findings of interviews of passengers operational processes

In these interviews, 18 managers from 6 departments have been interviewed in three airports, 6 for each. Misurata airport in Libya and Shannon and Cork airports in Ireland. (Interview questions see Appendix II).

The sample was to conduct interviews with responsible staff members in the three studied airports, Misurata airport in Libya and Shannon and Cork airports in Ireland. Six managers at each airport were selected to be interviewed, they are: Security Director, Passport Control Manager, Registration Manager, Customs...
Director, Air Transport Manager, and Strategy Manager. In addition to those people, the sample included 6 operation station managers. (2) from Libyan airlines, (2) from Afriqiyah Airways, (1) from Ryanair airlines and (1) from Aer Lingus airlines. It means that the sample size is 24 managers.

The results of the interviews showed that there was almost complete agreement between the respondents and stressed the importance of standardizing the procedures for passengers, as this contributes to a reduction in error and a reduction in time lost. The results of the interviews also showed that the most important operation for passengers is the security inspection. The more stringent the procedures, the greater the satisfaction of customers and stakeholders, as well as increasing the classification of the airport locally and internationally.

A) Car parking:

There is a big gap between the car parks in the Libyan and Irish airports. Parking at Libyan airports suffers from many problems. The most important is the lack of classification of these car parks. For example, there are no short or long term positions where there are open and unsecured stations. Passengers traveling through Libyan airports do not park their cars at those car parks. They prefer to arrive at airports via other means of transport such as taxis and buses.

In contrast, Irish airports offer both short-term and long-term parking within the airport’s campus. Rates are always available online. Special rates are also available for frequent users of car parking facilities at airports. All car parks operate 24 hours and are regularly patrolled by Airport Police.

Whichever car park you use, passengers can book online tickets for car parking spaces and keep their car park tickets with them and pay your parking fees at the automatic pay stations before returning to their cars. Credit and debit card payments are accepted at the pay stations.

Facilities available to car park customers include a complimentary jump-starting service and air and water facilities.
B) Check – in

Libyan airports continue to use traditional methods of registration, despite the emergence of modern methods for this purpose. This is due to the weak infrastructure of telecommunications and information networks. Therefore, travelers to and from Libyan airports cannot use the modern methods of registration so they are unable to register via the Internet or using smartphones nor can they get boarding passes before arrival at the airport.

In contrast, passengers to and from Irish airports use all modern registration methods, such as using smartphones to register and issue boarding passes before arriving at the airport.

C) Security Check-in

It is clear that Irish airports have fewer checkpoints than Libyan airports but use more versatile inspection equipment. This indicates that the emphasis on the quality of the inspection and the variety of its equipment is more effective than repeating inspection points. Due to the fact that airports are divided into landside and airside areas, the landside area is open to the public, while access to the airside area is tightly controlled. The airside area includes all parts of the airport around the aircraft, and the parts of the buildings that are only accessible to passengers and staff. Passengers and staff must be checked by security before being permitted to enter the airside area. Conversely, passengers arriving from an international flight must pass through border control and customs to access the landside area, where they can exit the airport. Many major airports issue a secure keycard called an airside pass to employees, as some roles require employees to frequently move back and forth between landside and airside as part of their duties.
D) Passport control

The differences in dealing with passport control are due to the difference in legislation. Libyan airport authorities check passports at departures and stamp them, due to the security situation of the country. The passport control point for departures is after obtaining the boarding pass. As for access, it is the first step in dealing with the arrivals.

In contrast, Irish airports check passports during arrival only. This is done by the Irish Naturalisation & Immigration Service (INIS). With regard to departures, the task of recording passengers is done by the airlines. Passenger records are available in airlines, they can be ordered at any time by the airport management or the Irish Naturalisation & Immigration Service (INIS).

E) General Issues

Greater use of forecasting based on historical seasonal trends and passenger profiling can help prepare airport and airline staff for peak periods and help limit the congestion by deploying additional resources to services. Sharing the data with impacted stakeholders can help them improve their services also which gives a better passenger experience, limiting queue times. For instance, Cork uses texting to alert passengers when the queuing time is getting longer.

Helpful Safety and Security Tips

Each airport seeks to provide potential passengers with safety and security instructions to facilitate and expedite the security inspection at the airport. The results of case study no. 1 indicate that there are differences and similarities between the three airports studied in relation to the safety and security instructions that are displayed to passengers as shown in Table 6.3:
Table 6.3 Helpful safety and security tips at an airport

<table>
<thead>
<tr>
<th>Tips</th>
<th>Cork Airport</th>
<th>Shannon Airport</th>
<th>Misurata Airport</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allow sufficient time to arrive to airport</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Allow sufficient time to park the car</td>
<td>✓</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Use electronic boarding pass</td>
<td>✓</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Minimum luggage</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>No wrapped presents</td>
<td>✓</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Avoid wearing shoes, clothes containing metal in security</td>
<td>✓</td>
<td>✓</td>
<td>—</td>
</tr>
<tr>
<td>Mark your luggage</td>
<td>—</td>
<td>✓</td>
<td>—</td>
</tr>
<tr>
<td>Sizing up the lanes</td>
<td>—</td>
<td>✓</td>
<td>—</td>
</tr>
<tr>
<td>Liquids bags separate</td>
<td>✓</td>
<td>✓</td>
<td>—</td>
</tr>
<tr>
<td>Essential Prescription Medicines and special dietary requirements</td>
<td>✓</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>You may be chosen to be scanned</td>
<td>—</td>
<td>✓</td>
<td>—</td>
</tr>
<tr>
<td>Sharp or dangerous objects through the passenger security area</td>
<td>✓</td>
<td>✓</td>
<td>—</td>
</tr>
<tr>
<td>Ensure you’ve got all you need to move on to lounges and gates</td>
<td>✓</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Identifications are required</td>
<td>—</td>
<td>—</td>
<td>✓</td>
</tr>
<tr>
<td>Family members including children and infants or escorts</td>
<td>—</td>
<td>—</td>
<td>✓</td>
</tr>
<tr>
<td>Medical certificate for pregnant women is required</td>
<td>—</td>
<td>—</td>
<td>✓</td>
</tr>
<tr>
<td>A health certificate and placed in appropriate cages and payment</td>
<td>—</td>
<td>—</td>
<td>✓</td>
</tr>
<tr>
<td>liquids, oils and flammable materials is not permitted</td>
<td>—</td>
<td>—</td>
<td>✓</td>
</tr>
<tr>
<td>Medical conditions should be reported for patients</td>
<td>—</td>
<td>—</td>
<td>✓</td>
</tr>
<tr>
<td>The passenger's procedures shall not be terminated unless showing all baggage including cabin bag and hand baggage</td>
<td>—</td>
<td>—</td>
<td>✓</td>
</tr>
</tbody>
</table>

Table 6.3 shows that the tips provided by each of the three airports are either placed on the airport’s website as at Shannon and Cork airports, or attached to the hieroglyphs at the terminal as at Misurata Airport. Most of these tips are concerned with safety and security. Although all passengers will pass through the security process, the airport is keen to minimize security inspection time.
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There are other tips which are issued by airlines, as all companies have their own instructions and are usually changeable at any time.

6.3.7 The findings of survey of factors Influencing passenger operational processes

The operations of the passenger service represent the main core of the operations in an airport. Focusing on them in the early stages, especially in the strategic planning phase of the airport, contributes greatly to improving the quality of services and avoiding failure and delay. This also leads to increased consumer satisfaction. Most airports rely primarily on providing services to passengers only, while other airports offer service to both passengers and air cargo. In this research the researcher utilized the Service Blueprint tool to analyze passenger service operations.

In order to support the results obtained from the use of the Service Blueprint, the researcher used a survey to gain further feedback from airport and airline experts regarding best practices for passenger operations.

The survey was designed and distributed to identify the views of managers at Libyan and Irish airports in order to identify the most important factors that can effect on the passenger operations processes. This survey was designed to be completed by people working in leadership positions in the airport and airlines in both Libya and Ireland. It was sent to 88 managers representing 6 Libyan airports, 2 Libyan airlines, 3 Irish airports and 2 Irish airlines.

A total of 38 usable responses were received, which is 43%. The survey is included as shown (Appendix III). Figure 6.5 shows the organizations that participated in this survey via their managers. Five-point Likert scales from 1 = strongly disagree to 5 = strongly agree were used in the survey.
Demographic Characteristics of The Sample

Demographic questions collect data about the characteristics of the sample population (age, position, education and experience). Figure 6.6 illustrates respondents to the questions by the demographic.
It can be seen that the large number of respondents (20) fell in the ages of 40 and above. Regarding position in the organization, 13 out of 38 respondents worked as a security manager. The chart also presents the highest educational level of respondents, most of them had graduated with a college degree (30). Finally, experience in current position category shows that 22 respondents have more than 10 years in their current position.

As a result of conducting the survey, the researcher was able to develop a preliminary vision of the most important elements that must be taken into account in order to redesign those services to achieve better performance. Figures from 6.7 to 6.22 illustrates respondents perspectives about the components of passengers service processes.

"To what extent do you agree that the basic procedures for dealing with passengers at the airport are: security check, check-in and passport control?"

Respondents, when asked on their agreement that security inspection, check-in and passport control are the main stages of passengers service process, had differing views as presented in Figure 6.7.

Figure 6.7: Respondent Rating of Security check, check-in and passport control are the main stages
The answer to this question indicates that 61% of the respondents agreed and strongly agreed that the basic operations at the airport are security, registration and passports. It also points out that experts from different airports supported the need to focus on these key stages.

"To what extent do you agree that there are procedures for passengers in all airports around the world that should be universal?"

Respondents, when asked on their agreement with Standardizing passengers procedures, had differing views as presented in Figure 6.8.

![Figure 6.8: Respondent Rating of Standardizing passengers procedures](image)

The results indicate that most respondents either agree or strongly agree with Standardizing passengers procedures for all airports, standards that avoid errors and reduce delays. Standards also help passengers from different destinations understand what to do when they reach their destination, regardless of the country that owns the airport.
"To what extent do you agree that the multiplicity of security checkpoints at the airport enhances the security of passengers, airports and aircraft?"

Respondents, when asked on their agreement with multiplicity of security checkpoints, had differing views as presented in Figure 6.9.

![Figure 6.9: Respondent Rating of multiplicity of security checkpoints](image)

According to Figure 6.9, 56% of respondents agreed and strongly agreed that multiplicity of security checkpoints has a positive impact on improvement of security processes at the airport. In contrast, about 33% of respondents do not see that the multiplicity of security checkpoints has any advantages, they recommended using only one security checkpoint with very strict inspection.

"To what extent do you agree that the various procedures of service from one airport to the other may contribute to causing problems?"

Respondents, when asked on their agreement with Disadvantages of different procedures, had differing views as presented in Figure 6.10.
It is evident from Figure 6.10 that the majority of respondents with 67% agreed and strongly agreed that the differences of passengers service procedures have negative impact on the performance. While, about 22% of respondents answered with disagree and strongly disagree with this question. Only 11% of respondent could not decide whether this view is true or not.

"To what extent do you agree that the use of modern security inspection devices and their diversity contribute to improving the quality of airport security procedures?"

Respondents, when asked on their agreement with Modern equipment for security, had similar views as presented in Figure 6.11.
In Figure 6.11, 97% of respondents agreed that the use of modern technologies had a positive impact on security inspections. This trend was particularly evident in both groups, airports and airlines, as well as in both Libyan and Irish airports.

"To what extent do you agree that strict security inspection procedures contribute to increase passenger satisfaction?"

Respondents, when asked on their agreement with strict security inspection procedures, had differing views as presented in Figure 6.12
According to the Figure 6.12, the opinions of the respondents differed between supporters and opponents of the importance of tightening the security measures in increasing the satisfaction of passengers. 44% of respondents disagreed, 39% of them agreed with this proposal. While about 17% of respondents could not decide whether this view is true or not.

"To what extent do you agree that the security inspection procedures contribute to the creation of queues and the delay of flights?"

Respondents, when asked on their agreement with the security inspection procedures contribute to the creation of queues and the delay of flights, had differing views as presented in Figure 6.13.
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According to the Figure 6.13, the opinions of the respondents differed between supporters and opponents of the contribution of security inspection with creation of queues. where 61% of respondents agreed and strongly agreed, 31% of them disagreed with this proposal. While, there are 8% of respondents who could not decide whether this view is true nor false.

"To what extent do you agree that there should be a security inspection for the arrivals?"

Respondents, when asked on their opinions about the importance of security inspection for arrivals, had differing views as presented in Figure 6.14
Figure 6.14: Respondent Rating of the importance of security inspection for arrivals

According to the Figure 6.14, the opinions of the respondents differed between supporters and opponents of the security inspection for arrivals. Where 47% of respondents disagreed and strongly disagreed. In contrast, 36% of respondents agreed and strongly agree. While, there are 17% of respondents who could not decide whether this view is true nor false.

"To what extent do you agree that the sequence of check-in procedures for passengers depend primarily on airlines?"

Respondents, when asked on their opinions about the sequence of check-in procedures for passengers depend primarily on airlines, had differing views as presented in Figure 6.15
It is evident from Figure 6.15 that respondents collectively rate that The sequence of check-in procedures for passengers depend primarily on airlines. This indicates that Check-in is the airline's main function, to accept luggage that is to go in the aircraft's cargo hold and issue boarding passes. This is the process whereby passengers are accepted by an airline at the airport prior to travel. The airlines typically use service counters found at airports. The check-in is normally handled by an airline itself or a handling agent working on behalf of an airline. Passengers usually hand over any baggage that they do not wish or are not allowed to carry into the aircraft's cabin and receive a boarding pass before they can proceed to board their aircraft.

"To what extent do you agree that the use of modern equipment and IT in the check-in stage contributes to improve the quality of services for passengers?"
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Respondents, when asked on their opinions about the use of modern equipment and IT in the check-in stage contributes to improve the quality of services for passengers, had similar views as presented in Figure 6.16

![Figure 6.16: The use of modern equipment and IT in the check-in stage contributes to improve the quality of services for passengers](image)

It is evident from Figure 6.16 that respondents collectively rate that the use of modern equipment and IT in the check-in stage contributes to improve the quality of services for passengers. There are a number of modern information technologies that can be used to complete the registration process at airports. Passengers with no check-in luggage can avail of self-service kiosks, online check-in and boarding cards and avoid queues. By removing these passengers from the queue it shortens the amount of time other passengers need to spend queue. It reduces the amount of time a passenger needs to be at the airport ahead of their flights, saving them time.
“To what extent do you agree that check-in procedures contribute significantly to the creation of queues and the delay of flights?”

Respondents, when asked on their opinions about the check-in procedures contribute significantly to the creation of queues and the delay of flights, had differing views as presented in Figure 6.17

![Check-in causes queues and delay chart](image)

Figure 6.17: check-in procedures contribute significantly to the creation of queues and the delay of flights

According to the Figure 6.17, the opinions of the respondents differed between supporters and opponents that the check-in procedures contribute significantly to the creation of queues and the delay of flights. where 55% of respondents agreed and strongly agreed. In contrast, 33% of respondents disagreed and strongly disagree. The respondents who answered with agree and strongly agree were in line with that airlines policies changes can make passengers confused by not being familiar with individual airline policies leading to delays at check-in and longer queues.
"To what extent do you agree that registration staff has an important role in the registration process?"

Respondents, when asked on their opinions about the role of registration staff, had similar views as presented in Figure 6.18

![The role of registration staff chart]

Figure 6.18: the role of registration staff

It is evident from Figure 6.18 that respondents collectively rate that registration staff has a significant role in the registration process. This finding reflects that most airlines offer several types of e-registration, the need for interaction between the passenger and the employee is still necessary. Therefore, the employee's efficiency has an important impact in improving the quality of services and achieve customer satisfaction.

"To what extent do you agree that passport control procedures contribute significantly to the creation of queues and the delay of flights?"

Respondents, when asked on their opinions about the passport control procedures contribute significantly to the creation of queues and the delay of flights, had differing views as presented in Figure 6.19
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According to the Figure 6.19, the opinions of the respondents differed between supporters and opponents that the passport control procedures contribute significantly to the creation of queues and the delay of flights. Where 61% of respondents agreed and strongly agreed. In contrast, 28% of respondents disagreed and strongly disagree. The respondents answered with agree and strongly agree were in line with that Various countries' entry policies make passengers confused, especially regarding the need to have a visa before entering the destination airport.

"To what extent do you agree that passport control procedures are more important when arriving than when departing?"

Respondents, when asked on their opinions that the passport control procedures are more important when arriving than when departing, had differing views as presented in Figure 6.20
Figure 6.20: the passport control procedures are more important when arriving than when departing

According to the Figure 6.20, the opinions of the respondents differed between supporters and opponents that the passport control procedures are more important when arriving than when departing, where 47% of respondents agreed and strongly agreed. In contrast, 47% of respondents disagreed and strongly disagree. The respondents working in Irish airports answered with disagree and strongly disagree were in line with that passports control for passengers at departure is the responsibility of airlines.

"To what extent do you agree that the human element is the most important component of the passenger service process?"

Respondents, when asked on their opinions about the importance of the human element in the passenger service processes, had similar views as presented in Figure 6.21
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It is evident from Figure 6.21 that respondents collectively rate that the human element is the most important component of the passenger service. This finding was in line with that a qualified employee contributes to reducing human errors and helps improve performance.

"To what extent do you agree that backstage services and support systems have an impact on improving the quality of services within the airport?"

Respondents, when asked on their assessment for the impact of backstage services and support systems on improving the quality of services, had similar views as presented in Figure 6.22.
It is evident from Figure 6.22 that respondents collectively rate that "To what extent do you agree that backstage services and support systems have an impact on improving the quality of services".

"To what extent do you agree that improving the design of passenger services, for example: security inspection, registration process and passport control should be taken into account while airport strategic planning and focusing on high quality standards?"

Respondents, when asked on their assessment for the impact of strategic planning and focusing on high quality standards, had similar views as presented in Figure 6.23

![Figure 6.23: The impact of strategic planning and focusing on high quality standards](image)

It is evident from Figure 6.23 that respondents collectively rate that improving the design of passenger services, for example: security inspection, registration process and passport control should be taken into account during airport strategic planning and focusing on high quality standards.
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Figure 6.24 summarizes the results of the passenger operational processes survey which have been illustrated in the Figures 6.7 to 6.23.

According to Figure 6.24 the suggestions included in the questionnaire as questions which recorded the highest support of respondents either agree or strongly agree were for the use of modern technologies and the importance of the backstage and support systems in improving the quality of service with 97% for each.

In contrast, the need for security inspection of arrivals scored the lowest approval rate by respondents at 36%. Where they see that the arriving passengers were checked at the security of the originating airport.

Overall, it can be seen that most of the respondents answered either "strongly agree" or "agree" to most of the questions, and this indicates that they support the suggestions of the researcher on the factors that positively affect passengers.
service processes. Figure 6.25 illustrates the most important factors affecting passenger service operations and should be taken into consideration when improving or redesigning the service.

![Diagram of passenger service operations]

**Figure 6.25**: The most important factors affecting passenger service operations

Figure 6.25 shows the actual steps of service which are provided to passengers through airports, using the Service Blueprint tool. It can be seen that a number of suggestions have been added to support the passenger service process. These suggestions were based on the responses of the respondents during the implementation of the survey.

In general, we note that the most important proposal provided by the respondents (directors working in the authority of the airport and airlines) are the need to keep up with the use of modern equipment both in the security inspection stage and the registration stage. In addition to the use of modern devices, there is a need to develop the human element in all stages of service and redesigning services to achieve the highest level of performance.
6.3.8 Key findings of benchmarking case study no.1

Although the International Airport Institute has set standards for passenger service, it has classified it into seven main categories: land services, registration, security inspection, halls, information, signs and services for arrivals. However, many airports around the world adopt different standards. But these standards are often under the standards published by the Airport Council International (ACI). Most airports adopt local or regional standards, either under the conventions or in line with the nature of each country. Airports in each country often adopt the same local or regional standards.

As a result of the first case study carried out in three airports, one is located in Libya, and the other two are located in Ireland. In addition, a survey was used to collect the views of a number of staff member who are working in responsible positions related to airport operations at a number of Libyan and Irish airports in order to support the results of case study no. 1.

In view of Service Blueprint, which was used to analyze passenger operations at Libyan and Irish airports, there are some differences in passenger service operations, whether in the service stages or the types of equipment and techniques used in each operation.

The results of the first case study show that Irish airports focus on the quality and variety of security screening equipment and techniques, rather than the repetition of the same checks, which greatly improves the quality of service while maintaining a high degree of security within the airport.

In contrast, Libyan airports adopt a multi-stage security inspection with less use of security inspection methods, which contributes to low security performance and low quality of service. Also, the multiplicity of security checkpoints does not work and does not help improve the efficiency of inspections and often creates queues.
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6.4 Benchmarking Case study no. 2 - Passenger Service Quality

6.4.1 The purpose of the case study

This case study aims to figure out how airport management deal with service quality issues and what is the main method used to measure the quality of service provided by the airport to customers (passenger). In addition to, determining the most important factors affecting the quality of services, and considering that the researcher adopted the same standards in both the first and second case studies, which is (ACI) standards, then the knowledge of these factors affecting the quality of services will be valuable as it directly related to passenger operations analyzed in case study no. 1.

6.4.2 The selection of the case study

The reason for choosing this case study is to figure out the views of customers towards the services provided by the airport, as the standard used in this case is the same as the criterion used in case study no (1), so the results of this study will be complementary to the results of the case study No. (1). When identifying the most important factors affecting the quality of service, it will be easy to determine the appropriate mechanism to design the model of passenger operations that must be optimized.

6.4.3 The case study design

The researcher adopted the classification of the Airport Council International (ACI) as a standard for this case study, which is divided into six main sections: ground transportation, inspection services, security inspection, signs and information, airport facilities, access services.

The questionnaire form is designed according to the above criteria with more detail in each item. So that each item contains detailed information. Misurata airports in Libya and Shannon, Cork airports in Ireland were selected for this case
study. As for samples, they vary from one airport to another according to the community.

6.4.4 The Sample Size

The researcher adopted the convenience sampling (also known as Haphazard Sampling or Accidental Sampling), which is a type of nonprobability or nonrandom sampling where members of the target population that meet certain practical criteria, such as easy accessibility, geographical proximity, availability at a given time, or the willingness to participate are included for the purpose of the study. (Dornyei, 2007). Figure 6.26 presents the sample size of benchmarking case study no. 2, which aims to evaluate the service quality of the airports studied.

![Sample Size Chart]

Figure 6.26: The sample size of benchmarking case study no. 2 for passenger

At Misurata Airport, 30% of the responses were collected. As for Shannon Airport, 45%. For Cork Airport, we cannot calculate the percentage because the number of distributed questionnaires is not available.

* It is not available, it was conducted by the airport management.
6.4.5 The findings of benchmarking case study no. 2:

The results of the benchmarking case study conducted at both Misurata, Shannon and Cork airports showed that these airports focus on the customer by adopting quality assessment methods to determine the degree of satisfaction of passengers. This assessment is done by knowing the opinions of customers by asking them several kinds of related questions. It is also noted that the studied airports use different methods in assessing the quality of services provided.

The airport of Misurata is based on the use of a paper questionnaire and direct distribution to passengers. Shannon Airport uses two methods: the first is to use a paper questionnaire and the second method is to use the customer review method through the airport website. Cork airport depends on the use of the traditional method of using the paper questionnaire as well as the use of a direct and simple evaluation, which is the development of a small device in the airport lounge. The object of this device is to assess the degree of satisfaction from low to high, it follows the Likert assessment system.

The questionnaire at Misurata and Shannon airport was distributed and collected by the researcher. However, the management of Cork airport has own survey which is conducted periodically.

Self-Completion Questionnaire for passenger

Quality dimensions used for evaluation are based on The Airport Council International (ACI) classification. It is divided into six dimensions. Table 6.4 shows the six quality dimensions for an airport.

Table 6.4 Quality dimensions for an airport

<table>
<thead>
<tr>
<th>No.</th>
<th>Services Dimensions/Attributes</th>
<th>Performance Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Ground transportation</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>B</td>
<td>Check-in services</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>C</td>
<td>Departure security inspection</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>D</td>
<td>Signs and information</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>E</td>
<td>Airport services and facilities</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>F</td>
<td>Arrival services</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>
Based on the passenger perspective, they indicate their assessment of the performance level of the airport (by circling a number) for each of the following 41 features of its services using the Likert scale. According to a 5-point scale (1 = very unsatisfied to 5 = very satisfied)

The studied airports adopt the standards published by The Airport Council International (ACI). However, there are subcategories for each major classification.

Table 6.5 shows the subcategories used to assess the quality of services and thus the satisfaction of the passengers.

Table 6.5 criteria and sub criteria of service quality

<table>
<thead>
<tr>
<th>No.</th>
<th>Services Dimensions/Attributes</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Low .... High</td>
</tr>
<tr>
<td>A</td>
<td>Ground transportation</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Convenience of ground transportation to/from the airport</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>2</td>
<td>Parking availability</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>3</td>
<td>Parking charges</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>4</td>
<td>Taxi services</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>B</td>
<td>Check-in services</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Check-in queuing time</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>6</td>
<td>Efficiency of check-in staff</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>7</td>
<td>Courtesy and Helpfulness of check-in staff</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>C</td>
<td>Departure security inspection</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Waiting time at passport/ID inspection</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>9</td>
<td>Waiting time at security inspection</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>10</td>
<td>Attitude of inspection staff</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>11</td>
<td>Thoroughness of security inspection</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>12</td>
<td>Feeling of safety and security during security inspection</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>D</td>
<td>Signs and information</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Clearness and accuracy of signs</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>14</td>
<td>Attractiveness of signs</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>15</td>
<td>Accuracy of flight information</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>16</td>
<td>Walking distance to the waiting lounge</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>17</td>
<td>Clear broadcasting of boarding and flight information</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>18</td>
<td>Provision of tourism information</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>E</th>
<th>Airport services and facilities</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>Quality and prices of food and beverages</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>20</td>
<td>Attitude of food and beverage service staff</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>21</td>
<td>Availability and variety of food and beverage</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>22</td>
<td>Variety of shops and prices</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>23</td>
<td>Attitude of shop staff</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>24</td>
<td>Availability of banking, ATM, and money changing services</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>25</td>
<td>Availability and comfort of seats</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>26</td>
<td>Wi-Fi access</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>27</td>
<td>Availability and convenience of restrooms</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>28</td>
<td>Cleanliness of restrooms</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>29</td>
<td>Cleanliness of the terminal</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>30</td>
<td>Services for disabled passengers</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>31</td>
<td>Availability and convenience of trolleys</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>32</td>
<td>Nursery room</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>33</td>
<td>Health center</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>34</td>
<td>Information desks</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>35</td>
<td>Cell phone charging facilities</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>36</td>
<td>Comfort of the terminal</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>37</td>
<td>The efficiency of complaint handling</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>F</td>
<td>Arrival services</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>Passport/ID inspection upon arrival</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>39</td>
<td>Attitude of inspection staff upon arrival</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>40</td>
<td>Speed of baggage claim</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>41</td>
<td>Customs inspection</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

**Results of quality service assessment in the three airports**

Figure 6.27 shows the summary of quality assessment which was collected by the researcher via conducting a passenger survey at Misurata and Shannon airports and collecting ready data from the airport authorities of Cork airport.

Since Cork Airport has ready data on passenger service quality assessment, there is a difference between the number of features measured by the researcher at both Misurata and Shannon airports, reaching 41, while Cork Airport used only 30 features. These features have been developed by the International Airport Institute and are constantly being changed and improved to suit changes in the international airport. For this reason, the researcher used in the Figure 6.27 a comparison of Quality of service from point of view of passenger.
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Figure 6.27: A comparison of quality of service from point of view of passenger.

The results indicate that the Libyan airports represented at Misurata Airport still needs to be developed and improved, and adopting more effective protocols, especially in dealing with passengers. Which means that there is a possibility of benefiting from the experience of Irish airports in developing a model for passenger operations.

From the previous assessment, it can be seen that the security aspect is a source of concern for all airports, which leads to the thinking of how to determine the appropriate stages of passenger service and the security inspection equipment to be adopted in dealing with passengers.

Figure 6.28 illustrates a comparison of three airports in terms of high and low score of quality service evaluation.
The evaluation items that received the highest and lowest points vary from one airport to another, at Cork Airport, the terminal design recorded the highest satisfaction score, while the value of money for shopping services recorded the lowest satisfaction score.

At Misurata Airport, the situation is different, the sense of safety and security recorded the highest degree of satisfaction among passengers, while the behaviour of employees to provide food and beverage services recorded the lowest satisfaction score.

At Shannon airport, the efficiency of the registration staff recorded the highest satisfaction, while the parking charges recorded the lowest degree of satisfaction among passengers, we also note that passengers tend to focus often on the items that lead to increased cost, such as high food prices and parking charges.
Breakdown of self-questionnaire for assessment of passenger service:

Figures 6.29 to 6.31 illustrate the details of the process of assessment of passenger service quality for the three selected airports. Which shows a variance in the results of the assessment from the point of view of passengers, and also show the trends of passengers in two different airports.

![Figure 6.29: Passengers satisfaction at Misurata airport](image)
Figure 6.30: Passengers satisfaction at Shannon airport

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Satisfaction Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficiency of check-in staff</td>
<td>4.39</td>
</tr>
<tr>
<td>Waiting time at passport/ID inspection</td>
<td>4.38</td>
</tr>
<tr>
<td>Courtesy and helpfulness of check-in staff</td>
<td>4.37</td>
</tr>
<tr>
<td>Feeling of safety and security inspection</td>
<td>4.36</td>
</tr>
<tr>
<td>Cleanliness of the terminal</td>
<td>4.32</td>
</tr>
<tr>
<td>Thoroughness of security inspection</td>
<td>4.31</td>
</tr>
<tr>
<td>Walking distance to the waiting lounge</td>
<td>4.31</td>
</tr>
<tr>
<td>Passport / ID inspection upon arrival</td>
<td>4.30</td>
</tr>
<tr>
<td>Availability and convenience of restrooms</td>
<td>4.29</td>
</tr>
<tr>
<td>Waiting time at security inspection</td>
<td>4.28</td>
</tr>
<tr>
<td>Accuracy of flight information</td>
<td>4.28</td>
</tr>
<tr>
<td>Check-in</td>
<td>4.26</td>
</tr>
<tr>
<td>Attitude of inspection staff upon arrival</td>
<td>4.24</td>
</tr>
<tr>
<td>Attitude of inspection staff</td>
<td>4.20</td>
</tr>
<tr>
<td>Customs inspection</td>
<td>4.20</td>
</tr>
<tr>
<td>Cleanliness of restrooms</td>
<td>4.16</td>
</tr>
<tr>
<td>Clarity and accuracy of signs</td>
<td>4.15</td>
</tr>
<tr>
<td>Clear broadcasting of boarding and flight...</td>
<td>4.14</td>
</tr>
<tr>
<td>Parking availability</td>
<td>4.13</td>
</tr>
<tr>
<td>Availability of banking, ATM, and money...</td>
<td>4.11</td>
</tr>
<tr>
<td>Wi-Fi access</td>
<td>4.08</td>
</tr>
<tr>
<td>Services for disabled passengers</td>
<td>4.05</td>
</tr>
<tr>
<td>Attitude of shop staff</td>
<td>4.05</td>
</tr>
<tr>
<td>Speed of baggage claim</td>
<td>4.03</td>
</tr>
<tr>
<td>Comfort of the terminal</td>
<td>4.02</td>
</tr>
<tr>
<td>Information desks</td>
<td>3.99</td>
</tr>
<tr>
<td>The efficiency of complaint handling</td>
<td>3.94</td>
</tr>
<tr>
<td>Availability and convenience of trolleys</td>
<td>3.93</td>
</tr>
<tr>
<td>Provision of tourism information</td>
<td>3.92</td>
</tr>
<tr>
<td>Attractiveness of signs</td>
<td>3.90</td>
</tr>
<tr>
<td>Availability and comfort of seats</td>
<td>3.88</td>
</tr>
<tr>
<td>Attitude of food and beverage service staff</td>
<td>3.83</td>
</tr>
<tr>
<td>Convenience of ground transportation</td>
<td>3.79</td>
</tr>
<tr>
<td>Cell phone charging facilities</td>
<td>3.71</td>
</tr>
<tr>
<td>Nursery room</td>
<td>3.71</td>
</tr>
<tr>
<td>Availability and variety of food and beverage</td>
<td>3.65</td>
</tr>
<tr>
<td>Health center</td>
<td>3.53</td>
</tr>
<tr>
<td>Taxi services</td>
<td>3.47</td>
</tr>
<tr>
<td>Variety of shops and prices</td>
<td>3.47</td>
</tr>
<tr>
<td>Quality and prices of food and beverages</td>
<td>3.36</td>
</tr>
<tr>
<td>Parking charges</td>
<td>3.34</td>
</tr>
</tbody>
</table>
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Figure 6.31: Passengers satisfaction at Cork airport

The Figures 6.29 to 6.31 showed that Cork airport has the highest level of satisfaction with passengers, followed by Shannon Airport, while Misurata Airport is ranked last.

Although the results of the evaluation indicate that the views and directions of customers (passengers) in both airports were different, but the criticism was clear for the items of money in both airports.

It can be seen that there is a difference in the number of evaluation items, and this is because Cork Airport used only 30 items to assess. Therefore, the researcher compared the results of the evaluation through the use of twenty elements of the evaluation process. These elements were used by the researcher
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at both Misruata and Shannon airports, these twenty elements were used by the management of Cork Airport in measuring the satisfaction of passengers towards the services provided as shown in Figure 6.32.

According to Figure 6.32, the results of the evaluation indicate that Cork Airport recorded the highest satisfaction for passengers in most evaluation items, followed by Shannon Airport and finally Misurata Airport.
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**Customer Review (Airport website)**

This is a sample for the 5-star airport rating method, which has been taken from customer review of Shannon airport.

It has features less than the self-completion questionnaire, however, it is very useful to give an initial assessment for quality of service provided to the passengers by the airport.

Figure 6.33 shows customer review for Shannon airport during September 2018.

<table>
<thead>
<tr>
<th>Experience At Airport</th>
<th>Departure Only</th>
<th>Departure Only</th>
<th>Arrival and Departure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date Visit</td>
<td>September 2019</td>
<td>September 2017</td>
<td>August 2015</td>
</tr>
<tr>
<td>Type Of Traveller</td>
<td>Business</td>
<td>Business</td>
<td>Family Leisure</td>
</tr>
<tr>
<td>Queuing Times</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Terminal Cleanliness</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Terminal Seating</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Terminal Signs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food Beverages</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Airport Shopping</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wi-Fi Connectivity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Airport Staff</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recommended</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Figure 6.33: Samples of customer Review for Shannon airport during 2015, 2017 and 2018

According to the results of the research in this method at the websites of the studied airports, it relies on very few respondents who have experience of using the airport.

Although this type of evaluation method does not provide details about the evaluation items. However, it is useful for giving an internal and external assessment. It provides an opportunity for international airport organizations to assess the airport as well as gives the airport an opportunity to review weaknesses for improvement within the airport.
6.4.6 The Key findings of benchmarking case study no. 2

The results of case study no. 2 indicated that the views and concerns of passengers in both Libyan and Irish airports were very similar. The results showed high satisfaction with security procedures regardless of their strictness at all times and what they cause of waiting in lines in front of security inspection equipment.

On the other hand, the results showed that passengers are highly critical of the quality and prices of food and beverage at Shannon and Cork airports, as some of them need to stay at the airport for hours sometimes due to delayed flights.

As for the assessment of service quality, the results of the study showed that Irish airports are more developed. They use a variety of methods to constantly evaluate the quality of their services, such as using the traditional manual questionnaire, smiley faces and reviewing on the website. This is in contrast to Libyan airports, where the results of the study showed poor interest in measuring passenger satisfaction.
6.5 Strategic Quality Management Self-completion Questionnaire

6.5.1 Introduction
The researcher adopted a two-route approach to develop a new strategic quality management framework for the airport. The first route is based on the identification and study of factors affecting strategic planning as well as quality management and the relationship between them. The second is to determine how the strategic planning stages and quality management concepts are integrated to form an integrated framework for airport strategic quality management. The researcher used the survey method to accomplish this goal, which is the primary objective of the research, and distributed the questionnaire to a number of specialists in the field of airports and airlines in both countries, Libya and Ireland, to obtain answers that could be useful in the development of the proposed framework.

6.5.2 Survey – Questionnaire:

This survey was designed and distributed to identify the views of managers at Libyan and Irish airports about how to integrate strategic planning and concepts of quality management and its relationship to operational processes. The survey was divided into three sections, the first section contained the respondent’s demographic data. The second section included the factors affecting the integration of strategic planning and quality management concepts. Section three was concerned with the respondents’ views on how to include strategic quality concepts in strategic planning stages. Five-point Likert scales from 1 = strongly disagree to 5 = strongly agree were used in the survey.

This survey was designed to be completed by people working in leadership positions in the airport and airlines in both Libya and Ireland. It was sent to 88 managers representing 6 Libyan airports, 2 Libyan airlines, 3 Irish airports and 2 Irish airlines. A total of 38 usable replies were received. The survey is presented...
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in Appendix (III). Figure 6.34 shows participated organizations in this survey via their managers.

Figure 6.34: Participated organizations

6.5.3 Demographic Characteristics of The Sample

Demographic questions collect data about the characteristics of the sample population (age, position, education and experience). Figure 6.35 illustrates respondents to the questions by the demographic.

Figure 6.35: The sample demographic
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It can be seen that the large number of respondents (20) fell in the ages of 40 and above. Regarding position in organization, 13 out of 38 respondents working as a security officer. The chart also presents the highest educational level of respondents, most of them had graduated with a college degree (30). Finally, experience in current position category shows that 22 respondents have more than 10 years in their current position.

6.5.4 Strategic Quality Management Factors

In order to obtain views on the overall influence of current practices in strategic quality management in the airport, respondents were asked to rate the influence of a number of factors on the integration of quality and strategy in the following:

- Understanding the importance of integrating quality management and strategic planning.
- Quality concepts that should be integrated with the strategic planning
- The development of a vision and the analysis of the internal and external environments of the airport
- Quality improvement is the responsibility of everybody working at all levels in the airport
- Integrating quality into the airport’s business strategy
- Formulating strategies able to meet the environmental changes and challenges
- Engaging employees should be embedded in the stage of establishing goals and selecting strategies
- Balancing the priority objective of the airport between focus on customer satisfaction and profitability
- Service design with built-in quality considerations effectively prevent the occurrence of defects
Continuous improvement (CI) should be embedded in all stages of strategic quality management implementation.

Feedback is very important for improvement and should preferably be implemented within the proposed strategic quality management framework.

One of the most important factors influencing the integration of quality and strategic planning is the improvement of operational processes by analyzing failures and delays.

Improving passenger service operations is the most important part of all airport services.

Respondents rated each statement on a five point Likert scale, ranging from strongly disagree to strongly agree. Results are presented and discussed in Figure 6.36 to Figure 6.48.

"Understanding the importance of integrating quality management and strategic planning?"

Respondents, when asked on their agreement with that most of the senior managers at the airport understand well the importance of integrating quality management and strategic planning and its role in achieving high standards of quality and performance in service organizations, had differing views as presented in Figure 6.36.
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Figure 6.36: Understanding the importance of integrating quality management and strategic planning

According to the Figure 6.36, the opinions of the respondents differed between supporters and opponents that most of the senior managers at the airport understand well the importance of integrating quality management and strategic planning and its role in achieving high standards of quality and performance in service organizations. where 44% of respondents agreed and strongly agreed. In contrast, 31% of respondents disagreed and strongly disagree. The respondents who answered with agree and strongly agree were in line with those interviewees who support that the managers in an airport understand well the importance of the integration of quality and strategy for the airport.

"Quality concepts that should be integrated with the strategic planning"

Respondents, when asked on their agreement with that quality concepts that should be integrated with the strategic planning, had similar views as presented in Figure 6.37.
Figure 6.37: Quality concepts that should be integrated with the strategic planning

It is evident from Figure 6.37 that respondents collectively rate that Quality concepts that should be integrated with strategic planning.

This finding reflects the findings of case study [1] where the interviewees fully supported the inclusion of quality at all stages of strategic planning at the airport.

"The development of a vision and the analysis of the internal and external environments of the airport"

Respondents, when asked on their agreement with that the development of a vision precedes the analysis of the internal and external environments of the airport, had differing views as presented in Figure 6.38.
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Figure 6.38: The development of the vision precedes the analysis of the internal and external environments of the airport

According to the Figure 6.38, the opinions of the respondents differed between supporters and opponents that the development of a vision precedes the analysis of the internal and external environments of the airport. Where 58% of respondents agreed and strongly agreed. In contrast, 27% of respondents disagreed and strongly disagree. The respondents who answered with agree and strongly agree were in line with the results of case study [1], which concluded that the interviewees support that the development of a vision precedes the analysis of the internal and external environments of the airport.

"Quality improvement is the responsibility of everybody working at all levels in the airport"

Respondents, when asked on their agreement with that Quality improvement is the responsibility of everybody working at all levels in the airport, had similar views as presented in Figure 6.39.
Figure 6.39: Quality improvement is the responsibility of everybody working at all levels in the airport

It is evident from Figure 6.39 that respondents collectively rate that Quality concepts that quality improvement is the responsibility of everybody working at all levels in the airport.

This finding reflects the findings of case study [1], where the interviewees fully supported that everyone in the airport should be responsible for improving quality.

"Integrating quality into the airport’s business strategy"

Respondents, when asked on their agreement with that Integrating quality into the airport’s business strategy, had similar views as presented in Figure 6.40.
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It is evident from Figure 6.40 that respondents collectively rate that Integrating quality into the airport’s business strategy.

This finding reflects the findings of case study [1], where the interviewees fully supported the Integration of quality concepts into the airport’s business strategic management stages.

"Formulating strategies able to meet the environmental changes and challenges"

Respondents, when asked on their agreement with that formulating strategies able to meet the environmental changes and challenges, had similar views as presented in Figure 6.41.
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Figure 6.41: Formulating strategies able to meet the environmental changes and challenges

It is evident from Figure 6.41 that respondents collectively rate that formulating strategies able to meet the environmental changes and challenges.

This finding reflects the findings of case study [1], where the interviewees from strategic departments at the airports fully supported the formulating strategies able to meet the environmental changes and challenges.

"Engaging employees should be embedded in the stage of establishing goals and selecting strategies"

Respondents, when asked on their agreement with that engaging employees should be embedded in the stage of establishing goals and selecting strategies, had similar views as presented in Figure 6.42.
It is evident from Figure 6.42 that respondents collectively rate that Engaging employees should be embedded in the stage of establishing goals and selecting strategies.

This finding reflects the findings of case study [1], where the interviewees from strategic departments at the airports fully supported the Engaging employees should be embedded in the stage of establishing goals and selecting strategies.

"The first priority objective of the airport should be focused on customer satisfaction rather than profitability"

Respondents, when asked on their agreement with that The first priority objective of the airport should be focused on customer satisfaction rather than profitability, had differing views as presented in Figure 6.43.
According to the Figure 6.43, the opinions of the respondents differed between supporters and opponents that the first priority objective of the airport should be focused on customer satisfaction rather than profitability. Where 56% of respondents agreed and strongly agreed. In contrast, 25% of respondents disagreed and strongly disagree. The respondents who answered with agree and strongly agree were in line with that focusing on customer satisfaction leads to improved profitability.

"Service design with built-in quality considerations effectively prevent the occurrence of defects"

Respondents, when asked on their agreement with that service design with built-in quality considerations effectively prevent the occurrence of defects, had similar views as presented in Figure 6.44.
Figure 6.44: Service design with built-in quality considerations effectively prevent the occurrence of defects

It is evident from Figure 6.44 that respondents collectively rate that service design with built-in quality considerations effectively prevent the occurrence of defects. This finding reflects that the interviewees from different departments at the airports support the service design with built-in quality considerations effectively prevent the occurrence of defects.

"Continuous improvement (CI) should be embedded in all stages of strategic quality management implementation"

Respondents, when asked on their agreement with that Continuous improvement (CI) should be embedded in all stages of strategic quality management implementation, had similar views as presented in Figure 6.45.
Continuous improvement (CI) should be embedded in all stages of strategic quality management implementation

![Bar Chart](chart.png)

**Figure 6.45: Continuous improvement (CI) should be embedded in all stages of strategic quality management implementation**

It is evident from Figure 6.45 that respondents collectively rate that Continuous improvement (CI) should be embedded in all stages of strategic quality management implementation.

This finding reflects that the interviewees from different departments at the airports support that considering Continuous Improvement (CI) at all the departments and stages.

"Feedback is very important for improvement and should preferably be implemented within the proposed strategic quality management framework"

Respondents, when asked on their agreement with the significant of feedback for develop the framework, had similar views as presented in Figure 6.46.
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It is evident from Figure 6.46 that respondents collectively rate that Feedback is very important for improvement and should preferably be implemented within the proposed strategic quality management framework.

This finding reflects that the interviewees from different departments at the airports agreed with the significance of feedback in developing the framework.

"The most important factors influencing the integration of quality and strategic planning is the improvement of operational processes by analyzing failures and delays"

Respondents, when asked on their agreement with the most important factors influencing the integration of quality and strategic planning is the improvement of operational processes by analyzing failures and delays, had similar views as presented in Figure 6.47.
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Figure 6.47: The most important factors influencing the integration of quality and strategic planning is the improvement of operational processes by analyzing failures and delays

It is evident from Figure 6.47 that respondents collectively rate that the most important factors influencing the integration of quality and strategic planning is the improvement of operational processes by analyzing failures and delays. This finding reflects that the interviewees from both airport and airlines work to improve passenger operations and inform is that up to 90% of delays are caused by airlines.

"Improving passenger service operations is the most important part of all airport services"

Respondents, when asked on their agreement with that Improving passenger service operations is the most important part of all airport services, had differing views as presented in Figure 6.48.
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Figure 6.48: Improving passenger service operations is the most important part of all airport services

According to the Figure 6.48, the opinions of the respondents differed between supporters and opponents that Improving passenger service operations is the most important part of all airport services. Where 80% of respondents agreed and strongly agreed. In contrast, 17% of respondents disagreed. The respondents who answered with agree and strongly agree were in line with that Passenger service operations are the backbone of airport operations.
6.5.5 The findings of Strategic Quality Management Survey:

The main aim of this study was to develop a new framework for strategic quality management. This part of the survey was concerned with a number of questions related to two dimensions. The first is the stages of strategic planning and the second is the concepts of quality management. These questions are intended to determine the respondents' opinions about which of the principles of quality management should be involved in one or some or all stages of strategic planning. This survey was designed to be completed by people working in leadership positions in the airport and airlines in both Libya and Ireland. It was sent to 88 managers representing 6 Libyan airports, 2 Libyan airlines, 3 Irish airports and 2 Irish airlines. A total of 38 usable replies were received. The survey is included as shown (Appendix III). Figure 6.5 shows participated organizations in this survey via their managers. Five-point Likert scales from 1 = strongly disagree to 5 = strongly agree were used in the survey.

Table 6.6 shows the perspective of respondents on how quality management concepts can be integrated into strategic planning stages in an airport.

Table 6.6 The perspectives of respondents about integrating quality management and strategic planning stages for an airport.

<table>
<thead>
<tr>
<th>Strategic planning stages</th>
<th>Developing Vision</th>
<th>Environment analysis</th>
<th>Establish Objectives</th>
<th>Choose strategies</th>
<th>Implement Strategies</th>
<th>Evaluate strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality Management concepts</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Leadership (LDR)</td>
<td>27</td>
<td>75%</td>
<td>11</td>
<td>31%</td>
<td>20</td>
<td>56%</td>
</tr>
<tr>
<td>Strategic Quality Planning (SQP)</td>
<td>15</td>
<td>42%</td>
<td>14</td>
<td>39%</td>
<td>15</td>
<td>42%</td>
</tr>
<tr>
<td>Design Quality, Speed and Prevention (DQSP)</td>
<td>10</td>
<td>28%</td>
<td>12</td>
<td>33%</td>
<td>8</td>
<td>22%</td>
</tr>
<tr>
<td>People Participation and Partnership (PP&amp;P)</td>
<td>14</td>
<td>39%</td>
<td>17</td>
<td>47%</td>
<td>16</td>
<td>44%</td>
</tr>
<tr>
<td>Fact-Based Management (FBM)</td>
<td>8</td>
<td>22%</td>
<td>14</td>
<td>39%</td>
<td>9</td>
<td>25%</td>
</tr>
<tr>
<td>Continuous Improvement (CI)</td>
<td>13</td>
<td>36%</td>
<td>12</td>
<td>33%</td>
<td>15</td>
<td>42%</td>
</tr>
<tr>
<td>Customer Focus (CF)</td>
<td>23</td>
<td>64%</td>
<td>12</td>
<td>33%</td>
<td>11</td>
<td>31%</td>
</tr>
</tbody>
</table>

* No. = No. of respondents.
This table shows the strength of the relationship between the concepts of quality management and strategic planning stages, where we note that the relationship between leadership and vision development stage was the highest, which is 75%.

Figure 6.49 illustrates the answers of respondents on how quality management concepts can be integrated into strategic planning stages in an airport.

![Figure 6.49: The overall of respondent's perspectives about integrating quality management and strategic planning stages for an airport.](image)

Figure 6.49 shows data about the relationship between strategic planning stages and quality management concepts for the airport from the point of view of airport stakeholders.

It is noted that leadership is the most important, especially in the stage of development of vision, in addition to its importance in the first stages of strategic planning, it appeared important in the rest of the stages. Next, focus on the customer, which was also important in the development of vision. Employee
participation is no less important than leadership, scoring the highest for both environmental analysis and strategy implementation. While continuous improvement emerged as the highest number in the strategy evaluation phase.

Separate results and discussion for each stage of strategic planning are presented in Figure 6.50 to Figure 6.55.

Developing Vision Stage

Respondents, when asked about their belief of which quality management concepts should be included in the vision development stage for the airport, demonstrate different views as shown in Figure 6.50.

![Developing Vision](image)

**Figure 6.50: The relation of vision development and quality management concepts**

Leadership was the most important quality management concepts, as indicated by 27 respondents or 75 percent. Second most important was customer focus, at 23 respondents or over 64 percent.

It is evident that those two concepts have more effect on the vision development than the others.
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It does not mean that we ignore the importance of the rest of the concepts of quality management to the "Development of vision".

Environment Analysis Stage

Respondents, when asked about their belief of which quality management concepts should be included in the environment analysis stage for the airport, demonstrate different views as shown in Figure 6.51.

![Figure 6.51: The relation of environment analysis and quality management concepts](image)

People participation and partnership (PP&P) was the most important quality management concepts, as indicated by 17 respondents or 47 percent. It is evident that this concept has more effect on the environment analysis stage than the others.

It does not mean that we ignore the importance of the rest of the concepts of quality management to the "Environment analysis".
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**Establish Objective Stage**

Respondents, when asked about their belief of which quality management concepts should be included in the "Establish objective" stage for the airport, demonstrate different views as shown in Figure 6.52.

![Establish Objectives](image)

Figure 6.52: The relation of establish objective and quality management concepts

Leadership was the most important quality management concepts, as indicated by 20 respondents or 56 percent. Second most important was customer focus, at 16 respondents or over 44 percent. It is evident that those two concepts have more effect on the establish objective stage than the others.

It does not mean that we ignore the importance of the rest of the concepts of quality management to the "Establish objectives".

**Choose Strategies Stage**

Respondents, when asked about their belief of which quality management concepts should be included in the choose strategies stage for the airport, demonstrate different views as shown in Figure 6.53.
Leadership (LD), Strategic Quality Planning (SQP) and Fact-Based Management (FBM) were the most important quality management concepts, as indicated by 18 respondents or 50 percent. It is evident that those concepts have more effect on the choose strategies stage than the others.

It does not mean that we ignore the importance of the rest of the concepts of quality management to the "Choose strategies".

**Implement Strategies Stage**

Respondents, when asked about their belief of which quality management concepts should be included in the implement strategies stage for the airport, demonstrate different views as shown in Figure 6.54.
People Participation and Partnership (PP&P) was the most important quality management concepts, as indicated by 22 respondents or 61 percent. Second most important was Leadership (LD), at 19 respondents, or 53 percent. It is evident that those two concepts have more effect on the implement strategies stage than the others.

It does not mean that we ignore the importance of the rest of the quality management concepts to the "Implement strategies".

**Evaluate Strategies Stage**

Respondents, when asked about their belief of which quality management concepts should be included in the evaluate strategies stage for the airport, demonstrate different views as shown in Figure 6.55.
Leadership (LD) and Continuous Improvement (CI) were the most important quality management concepts, as indicated by 18 respondents or 50 percent for each. It is evident that those concepts have more effect on the evaluate strategies stage than the others.

It does not mean that we ignore the importance of the rest of the quality management concepts to the "Evaluate strategies".
6.5.6 Key Findings of Strategic Quality Management Survey

The results of the survey showed that there is a need for a good understanding of the importance of integrating quality management and strategic planning by airport managers as well as airlines. This can be done through training and rehabilitation to understand the importance of integration and its role in developing and improving performance.

The results of the survey also showed the confusion of the respondents in determining which comes first, the development of the vision or the analysis of the environment.

The respondents' response to the question "focus on customer satisfaction before thinking about making profit" was mixed, and this is evidence that part of the respondents look at the issues in a short-term way. While focusing on customer satisfaction contributes to improving and increasing profitability over the long term.

Looking at the results of the survey in relation to finding the relationship between strategic management stages and SQM concepts, it is clear that "leadership" recorded the highest percentage in most stages. Especially in the first phase, "Development of Vision".

The findings also show that customer focus was included in the first stage, which refers to the development of the vision of the airport, on the other hand, Continuous Improvement (CI) was included in the last stage, which is the stage of evaluating the strategies.
6.6 Discussion

This section includes two main parts of the study: the operational part, which includes the passenger service from two angles: analysis of the operations of the passenger and measuring the quality of the passenger service. The second part is the strategic aspect, which includes the relationship between the stages of strategic management and the concepts of quality management and the extent to which the strategic part is related to the operational part in terms of customer focus and continuous improvement.

6.6.1 Passenger operational processes

There are major issues that are of interest to airport management, those issues are becoming increasingly complex and challenging to day-to-day management, those issues are as follows:

A) Car parking

There are several issues regarding booking, such as space availability, paystations, online booking, the new chip and pin credit card readers at paystations and exit columns where customers pay by credit/laser cards by entering their pin number or by going contactless. as well as online bookers who have the option of tapping their card at the entry's and exits of car parks. However, there is still the most important issue of operating the car park which is related to having the management system up and running at all times and that it is maintained to the highest standard with the newest version software and hardware.

B) Security Check

The security check is vitally important to prevent acts of unlawful interference taking place against civil aviation.
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From a passenger facilitation perspective security screening is critical as it is the only compulsory touchpoint for a passenger at the airport. A passenger has a choice whether they use car parks, restaurants, shops etc. The passenger has no choice about using security.

There are many factors which can contribute to security queue times:

- Security operational forecasting issues. Are there enough staff available at a given time to process the expected number of passengers?
- Flight departure time congestion. Departure times are not evenly spaced. For example, all of based aircraft depart during first wave between 05:00 and 07:00. This can lead to security congestion.
- Unexpected security staff shortage due to absence or illness.
- Security equipment failure.

The security inspection for departing passengers is to the similar standard for all airports. This standard is laid down in the Aviation Security Programmes, which is issued by The International Civil Aviation Organisation (ICAO). However, each state has its own aviation security programme. There is also a regional security programme, such as EU regulations.

**C) Check – in**

Traditional methods will still be used but will become less important and more limited in its offer. The younger generation prefer automation but when this fails human interaction is necessary. Equally for less tech savvy older generation persons the traditional method is still a preference and important for customer satisfaction. Passengers with no check-in luggage can avail of self-service kiosks, on line check-in and boarding cards and avoid queues. By removing these passengers from the queue it shortens the amount of time other passengers need to spend queuing. It reduces the amount of time a passenger needs to be at the airport ahead of their flights, saving them time.
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Failure results in personnel reverting to manual check-in procedures resulting in long queues and delays to passengers and aircraft. Passengers not being familiar with individual airline policies leading to delays at check-in and longer queues.

The main means of check-in is either on line with baggage drop (where required) or standard check-in at the desk should be used. There are a number of self-service check-in kiosks provided by airlines only which allows passengers check-in and print boarding cards and drop hold baggage if required.

D) Passport control

Local and regional regulations have an important role to play in handling both Libyan and Irish airports.

In Libyan airports, Due to the poor security situation, airport authorities check passengers' passports on arrival and in the airport. At the Irish airports, airport authorities only check the passports of arrivals, except for some cases that depend on the destination of the passenger.

Due to the cooperation between the EU countries, there is a smooth exchange of information through the networks of airport authorities in the EU which makes passport control easier and more efficient.

6.6.2 Passenger service quality

This section included a discussion of the results of the second case study - passenger service quality, which aimed to identify the most important factors affecting quality, and how to measure it in an airport.

A) Factors affecting quality of service from a passenger's point of view:

The results of the survey showed that the degree of satisfaction of passengers on security inspection procedures at all airports studied was high. These results
confirm that airport management gives priority not only to security inspections to protect passengers but aircraft, personnel and facilities.

The Libyan airports represented at Misurata Airport depend on the method of multiple security checks for departures, while the Irish airports represented at Cork and Shannon airports depend on the use of modern technologies such as information technologies and advanced security screening equipment, in addition to the use of CCTV in various places inside the lounge of the airport.

Although the results indicated that there was criticism for other services provided by the airport such as ground transportation to and from the airport, as well as food and drink services and prices, however, the airport management gives priority to the security aspect in its various operations.

B) The methods used to evaluate the quality of passenger service

Three main types of passenger quality assessment methods have been addressed in this research. These are as follows:

1- Paper-based survey questionnaire.
2- Customer review (Airport website)

Paper-based survey questionnaire method was used by the researcher at Misurata and Shannon airports to collect samples of passengers' answers. While Cork Airport provided ready-made data compiled by the administration earlier.

It is useful and effective because it contains more details about the service. Despite their importance and efficiency, it needs more time and effort, unlike the other methods used in the assessment.
6.6.3 The Integration of strategic management stages and quality management concepts

The results of SQM survey questionnaire showed that about 44% of respondents understand the importance of integrating quality management and strategic planning and its role in achieving high standards of quality and performance in service organizations. This indicator confirms that further enhancement is needed to improve the performance of airport management.

The results of the study also indicated that "leadership" should be ensured in most stages of strategic management. It means it is essential to understand that leadership is an essential part of effective management. As a crucial component of management, remarkable leadership behaviour refers upon building an environment in which each and every employee develops and excels. Leadership is defined as the potential to influence and drive the group efforts towards the accomplishment of goals. This influence may originate from formal sources, such as that provided by acquisition of managerial position in an organization.

A manager must have traits of a leader. Leaders develop and begin strategies that build and sustain competitive advantage. Organizations require robust leadership and robust management for optimal organizational efficiency.

The results of the study also showed that the importance of including the concept of "Customer Focus (CF)" in the first stage of strategic management. It means that airport management must accurately determine the needs and expectations of the passengers.

The concept of "Continuous Improvement (CI)" should be ensured in the last stage of the strategic management based on the opinion of the respondents (selected managers). After the passenger receives their services from the airport, in this case, their opinion can be determined about the service provided and then use feedback to improve the services periodically.
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6.7 Overall Chapter Conclusions

Since the objective of the research has been to develop a new strategic quality management framework in terms of customer focus and continuous improvement for single terminal airports, the results of the fieldwork pave the way for the development of that framework.

At the operational level, key findings indicate that the concerns of passengers when using the airport are primarily focused on improving the quality of security inspection. Then the quality and prices of other services such as food, beverage and car parking. The use of modern IT security monitoring systems and their continuous updating was the most prominent issue in the studied airports.

The results also indicated that there were some differences between Libyan and Irish airports in how to deal with departures and arrivals. The most important of these differences is the equipment used in both security inspection and registration, as it is noted that Irish airports rely on more sophisticated equipment in these operations. In addition, Irish airports do not inspect security arrivals, unlike Libyan airports. The Libyan airports still use the traditional methods for registration.

At the strategic level, key findings indicate that leadership has the most important role among other strategic quality management concepts, followed by customer focus and continuous improvement.

The focus on the customer is the artery connecting the administrative levels of the airport to each other. This will help the researcher to detail the activities related to the service of the passenger in the new framework and put them in a way that meets the requirements and expectations of the customer (passenger) as well as stakeholders at the airport.
Chapter Seven: The Framework Development

7.1 Introduction

The aim of this research was to develop an understanding of the significance of applying SQM practices in the airport sector. SQM is the way of integrating quality management concepts in the context of strategic planning with a focus on operational processes. This aim was achieved through answering the following research question "How can the application of practices of Strategic Quality Management (SQM) be developed to assist airport managers and decision-makers in further developing airports?".

In order to answer this question the research aims to develop a new strategic quality management framework, specifically, it is intended to be applied for Libyan airports, which they are all single-terminal airports and still undergoing development.

The proposed framework was developed based on the relationship between the strategic management stages (David, 2009) and the concepts of quality management (Tummala & Tang, 1995) of the airport and then linked to the passenger operational processes (Service Blueprint) in terms of Customer Focus (CF) and Continuous Improvement (CI).

7.2 Research Objectives:

In order to answer the research questions the following objectives were identified:

Objective (1) To explore, through a review of the literature, best practice of strategic quality management, in both manufacturing and service sectors, especially in relation to airport operations management.

Objective (2) To determine the key factors influencing passenger operational processes and their relation to the strategic planning of an airport.

Objective (3) To determine the factors influencing the passenger service quality using various evaluation methods.

Objective (4) To identify the key factors influencing the integration of quality management concepts and strategic planning in an airport.
Objective (5) Informed by the results of 1 to 4 above, to develop a new framework to assist decision-makers in applying best practice methods in the strategic quality management in the airport sector.

Objectives 1 to 4 were addressed in chapters 1 to 6. In this chapter, objective 5 was addressed through a synthesis of the best practice methods identified in the preceding literature review and fieldwork phases of the research.

This chapter presents the development of a new framework of strategic quality management for the Libyan airport sector.

7.3 The development process

The researcher adopted the approach of combining the strategic and operational levels of an airport. This approach is the basis of the proposed model in terms of customer focus and continuous improvement. Figure 7.1 illustrates the basic structure of the proposed model.
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Figure 7.1 presents the flowchart of the development framework which includes two main sections, the strategic level and the operational level. The first section is completed by identifying the possible relationship between the strategic management stages and quality management concepts, while identifying the strength of the correlation between those two cohorts. In order to achieve this goal, the researcher relied on findings of case studies as well as perspectives of the respondents to determine the importance of inclusion of each quality management concept into the strategic management stages for the airport.

The second section describes the passenger service phases which were completed as shown in Figure 7.2. Each phase contains four levels, begins with customer actions and ends at support processes.

The researcher adopted Service Blueprinting to illustrate passenger operational processes which is presented in the second section of Figure 7.1. Service Blueprint was completed through three phases which included, literature review, case studies and self-completion questionnaire.

The International Standards issued by the Airport Council International (ACI) (2011) which was adopted by the researcher in this research which gives general classifications of airport passenger operations.

The results of the case study no. 1 showed that there are some differences in passenger service operations in both countries studied, but the same key operations remain, such as security inspections. The type of equipment used for security inspection or registration depends on the situation of the country and the size of the airport. Figure 7.2 illustrates the proposed Framework
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Figure 7.2: The Proposed Framework
7.4 Discussion

The formation of the proposed framework and its key results are discussed in the following sections:

7.4.1 The Strategic Level

The first part of the form displays the strategic level and shows the relationship between phases of strategic management and quality management concepts. (David, 2009) introduced a model which describes strategic management phases through classifying it into six stages, while (Tummala, 1994) introduced a model which contains the concepts of quality management. This model was developed to identify the concepts of quality management but never refers to stages of strategic management clearly in chronological order. Part of the contribution to knowledge of this research is to determine which of the quality management concepts should be included in one or some or all phases of strategic management. The findings of the SQM self-completion questionnaire as presented in Chapter 6, section 6.5, showed that the concept of "leadership (LDR)" is most important, which was the highest in most phases of strategic management, especially in the development phase of the airport's vision.

In addition to the importance of "leadership (LDR)”, followed by People Participation & Partnership (PP&P), Customer Focus (CF) should be included in the first stage: based on the respondents’ answers. While Continuous Improvement (CI) was recommended to be included in "Evaluation strategies". Evaluation strategies is the last stage of strategic management based on model of David (2009). Linking strategic and operational level for the airport, in terms of customer focus and continuous improvement helps to understand the needs and expectations of passengers.

Continuous improvement can be included in all stages, however, it appears clearly in the last stage, after passengers avail of the service, then the airport management can evaluate performance and passenger satisfaction. Based on
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that, it is possible to get useful feedback on continuous improvement processes.

7.4.2 The Operational Level

The second part of the framework is the operational level. In this section, the contribution to knowledge which was achieved is the following:
- Determining the number of stages of passengers service.
- Identifying the appropriate equipment and devices for each stage.
- Figuring out the critical points which need consideration in more detail.

The second part of the framework was developed based on the findings from literature, especially, the Airport Council International publications (2011), the structured management interviews and the findings of the passenger survey.

Service Blueprint as presented in Figure 7.2 contains the following stages:

- Car parking.
- Terminal Security (Security Machines).
- Check-in (Registration).
- Passport control & immigration check for departures.
- Airside Security (Security Machines).
- Departure Lounges.
- Gates.
- Fly (Aircraft).
- Landing.
- Passport Control & immigration check for arrivals.
- Luggage belt.
- Customs.
- Arrival area.

Airports require parking lots, for passengers who may park their cars at the airport for a long period of time. Large airports will also have car rental firms, taxi
ranks, bus stops and sometimes a train station. Car parking at airports is often divided into three areas, short-term, long-term and special assistance. In the case of short term airport parking, parking rates are decided on per hour basis or per day basis in case the duration is more than 24 hours. It is advisable to book short term airport parking in advance if your length of parking is more than 24 hours but not otherwise. Long term parking lots, sometimes called satellite parking lots, are usually quite far from the airport. It might be required to take a shuttle to the terminal. Rates are considerably lower than short term or daily parking rates. Long term parking is ideal for anyone who needs to leave their car in the lot for several days.

7.4.2.1 Terminal Accessibility (Security Check)

Many airports around the world check passengers securely to allow access to the terminals, especially, this is the case in countries that are unstable and facing security challenges. In this case, passengers will be checked again at the airside accessibility barriers. The security inspection machines could be the same in both areas. Some airports use full body inspection at the airside accessibility area. Despite the repetition of security inspection which can contribute in emphasizing the security process, it can cause queues at the terminal entrance without any benefits.

7.4.2.2 Check-in

Over ninety percent of check-in processes are managed by airlines, where they are responsible for the provision of high quality services to passengers with a focus on using the latest methods including traditional and modern means for registration.

It is not expected that traditional methods for check-in will disappear soon, however, they will become less important and more limited in their offering. The younger generation prefer automation but when this fails human interaction is
necessary. Equally for less tech savvy older generation persons the traditional method is still a preference and important for customer satisfaction.

7.4.2.3 Passport control and immigration

For every airport around the world, arrivals must pass through passport control and immigration desks and passengers should have an entry visa if required, while some airports do have passport control and immigration process for departures. Airlines are responsible for recording passenger data for departures, as in Irish airports. In Libya and many other airports, passports must be checked at departure. A common problem nowadays is that some passengers do not have visas even for those who are using some airports only for transit. Therefore, as a result of this kind of confusion, airlines are facing problems with returning those passengers to their destinations of origin.

7.4.2.4 Airside Accessibility (Security Check)

At this stage, there are no options for departures to skip. When compared with other passengers service processes, security checks at this stage are similar to terminal accessibility, the only one thing that is different is the luggage check. Whereas at the terminal accessibility stage, passengers must give all their luggage including suitcases, but at the airside accessibility stage, they have to give hand baggage and cabin bags as well. The security check is vitally important to prevent acts of unlawful interference taking place against civil aviation. From a passenger facilitation perspective security screening is critical as it is the only compulsory touchpoint for a passenger at the airport. A passenger has a choice whether they use carparks, restaurants, shops etc. The passenger has no choice about using security.
Chapter Seven: The Framework Development

7.4.2.5 Arrivals (Passport control)

Passengers must be pass through immigration and customs clearance upon arrival. There is no need for security screening unless passengers are coming from an airport whose security procedures do not meet the common basic standards.

There are two main issues which can affect the performance of Luggage system as follows:

- Insufficient personnel to deal with luggage delays.
- Baggage tracking can fail, because different airports / airlines use different methods of tracking.

The standardization of passenger service procedures leads to improvement of performance, reduced delays and increased customer satisfaction. It gives passengers standardized procedures across the industry with which they must comply. It avoids confusion and unnecessary delays.

7.5 Summary

The proposed framework was developed based on the views and suggestions gathered from various sources, which included a number of managers at the studied airports, airlines operating in those airports, as well as the views of the samples of passengers.

The framework was developed in stages, the first was through the researcher, where it was prepared as a first draft, the second stage was to present the draft to the respondents at the airport and airlines, the third stage the researcher has modified and revised the framework, the fourth stage was presented to the respondents at the airport and airlines again, the fifth stage was through preparing the final version. This version was used in the validity process.
The framework comprises two main parts, one is to establishing the relationship between quality management concepts and strategic management phases, and the other is to develop the passenger service operations. The results of the framework development showed that all concepts of quality management needed to interact with the phases of strategic management, however, leadership was the most influential followed by customer focus and continuous improvement.

The security function has a clear and important role in the airport operations, for passengers, airport and airlines. Although traditional methods of security inspection continue to operate, the use of modern technologies contribute significantly to saving time and effort, which leads to more accurate results.

Registration techniques depend mainly on airlines. These technologies vary from company to other, and despite the emergence of new technologies based on information technology, traditional methods are still required.
Chapter Eight: Validation

Chapter Eight: Validation
Chapter Eight: Validation

8.1 Introduction

This chapter presents the methods and techniques which were used to validate both research methods and output. It summarizes briefly the validity of methods which were discussed in details in Chapter 5.

As for the output validation, this chapter explains the validation method of the proposed framework which was "Experts Review", it included selection of experts involved in the validation process, identifying criteria and validation feedback. Finally, the overall chapter conclusions are presented. The validation plan as shown in Fig. 8.1.

![Validation Diagram](image)

Figure 8.1: The validation plan

8.2 Validation of Research Methods:

The fieldwork carried out in this research used a number of techniques to collect and analyze data for understanding the processes and procedures within the airports studied. The fieldwork included benchmarking case studies and self-completion questionnaires.

The information was then represented in two levels of the proposed framework, one by the relationship between strategic management and quality management...
Chapter Eight: Validation

concepts and the other by Service Blueprint as shown in Fig. 7.1. The methods employed in data collection included interviews with personnel, examination of documentation and walkthrough of the airport’s facilities. The interviews represented the views of management personnel holding responsibility for each department studied. Validation of research methods has been addressed in Chapter 5. Section 5.11.1

8.3 Validation of The SQM Framework:
The validation process of the proposed framework was addressed in Chapter 5, section 5.11.2. It includes four stages which are as follows:

1. Selecting the validation method, which was "Experts review".
   Why Experts review method? Because:
   - The implementation of the framework takes time.
   - Diversity of data resources (different companies in two countries).
   - Experts review is one of the appropriate methods which was used by previous theses. Especially (The frameworks development). (See chapter five, section 5.11.2).

2. Selecting validation criteria, which was "Quality Factors"
   - Why Quality Factors? Because the end user of the framework focuses on quality.

3. Selecting the target people who assess the framework. They are Experts working in airport and airlines in both Libyan and Irish airports.

4. The quality factors used in validation were discussed with three airport experts before using them as part of the verification process.

5. Analysis of the validation feedback

8.3.1 Experts
In discussing the reliability of the peer review process for identifying adverse events Forster et al. (2012) state that a minimum of three reviewers is required to be 95% confident of correct identification of adverse events when analysing case studies. In this thesis, ten experts were selected to assess the framework.
Three of them were chosen to act two roles; the first role was to review the quality factors questions and the second role was to review the framework. The three experts are numbers 1, 2 and 5 as presented in Table 8.1. The rest of the seven experts only contributed by reviewing the framework. Table 8.1 represents the main experts who had a vital role in validation of the framework. These experts are divided into two groups, the airport and airlines groups.

Table 8.1 Validation Experts

<table>
<thead>
<tr>
<th>No.</th>
<th>Role</th>
<th>Experience (years)</th>
<th>Function</th>
<th>Reason for selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Operations &amp; Safety Manager</td>
<td>25</td>
<td>Airport</td>
<td>Ensure that the framework meets the need of decision makers for the airport, which is mainly the quality of the framework</td>
</tr>
<tr>
<td>2</td>
<td>Deputy Head of Operational Security &amp; Police</td>
<td>14</td>
<td>Airport</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Safety &amp; Training Coordinator</td>
<td>16</td>
<td>Airport</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Airport strategy director</td>
<td>7</td>
<td>Airport</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>President of Libyan Airports Authority</td>
<td>17</td>
<td>Airport</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Operations manager</td>
<td>6</td>
<td>Airport</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Operations station manager</td>
<td>12</td>
<td>Airlines</td>
<td>Ensures that the framework meets the need of decision makers for the airlines, which is mainly the quality of the framework</td>
</tr>
<tr>
<td>8</td>
<td>Operations station manager</td>
<td>7</td>
<td>Airlines</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Customer Service Supervisor</td>
<td>5</td>
<td>Airlines</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Duty Manager</td>
<td>19</td>
<td>Airlines</td>
<td></td>
</tr>
</tbody>
</table>
Chapter Eight: Validation

Before using the validation survey, it was presented to three experts mentioned above, their jobs as shown in Table 8.1. Questions relating to quality factors were discussed with the three experts mentioned above, whose figures are shown in Table 8.1, (1, 2 and 5). The result of the discussion was that they were adequately aware of most of these factors as a result of the expertise they had in their field.

Based on the previous reference, which indicates that the minimum number of experts is three, for this reason, the researcher chose to send the questionnaire to the rest of the seven experts, and if there was a need to have any comments then it can be remedied later. However, all experts completed the questionnaire and commented on the framework without indicating any confusion in the questions asked.

8.3.2 Criteria of Framework Validation

Quality factors requirements were selected and described as a criteria of the framework based on the recommendations citing a number of books, peer reviewed journals and standards. Those references were mentioned in Chapter 5. Quality factors were presented as shown in Table 8.2

Table 8.2 Quality Factor requirements for the framework (Kelly, 2011)

<table>
<thead>
<tr>
<th>No.</th>
<th>Quality Factor</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Usability</td>
<td>The efficiency, effectiveness and satisfaction with which specified users achieve specified goals in particular airports</td>
</tr>
<tr>
<td>2</td>
<td>Flexibility</td>
<td>The ease with which the framework can cope with business and/or regulatory change</td>
</tr>
<tr>
<td>3</td>
<td>Simplicity</td>
<td>The framework is clear and contains the fewest possible entities and relationships</td>
</tr>
<tr>
<td>4</td>
<td>Completeness</td>
<td>All user requirements are included</td>
</tr>
</tbody>
</table>
### 8.3.3 Validation Feedback

Once the validation method, the target persons and evaluation criteria were identified, a Survey questionnaire as shown in appendix (V) for this purpose was distributed to ten people listed in the Table 8.1.

Validation feedback is presented in figure 8.2. The feedback of the airport and airlines experts is presented as a count of the number of entries at each level of agreement for each cohort. Likert (1932) developed the principle of measuring attitudes by asking people to respond to a series of statements about a topic, in terms of the extent to which they agree with them, and so tapping into the cognitive and affective components of attitudes. In this research, A five point Likert scale was used to obtain the feedback from the experts selected. Figure 8.2 illustrates total validation of the proposed framework.

<table>
<thead>
<tr>
<th>No.</th>
<th>Quality Factor</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Integration</td>
<td>The framework is consistent with the organization's business processes</td>
</tr>
<tr>
<td>6</td>
<td>Understandability</td>
<td>The concepts and structures can be easily understood</td>
</tr>
<tr>
<td>7</td>
<td>Implementability</td>
<td>The ease with which the framework can be implemented within specified lead-times and budget constraints</td>
</tr>
<tr>
<td>8</td>
<td>Maintainability</td>
<td>The extent to which the framework can be maintained.</td>
</tr>
</tbody>
</table>
Figure 8.2 showed that most of validation responses on the proposed framework were positive, especially integration and implementability. It is also noted that an airport expert commented that the framework is incomplete and recommended dividing it into three sub-models to facilitate understanding and implementation of the framework in the airports. This comment is not relevant at this stage. The framework cannot be divided into separate units because processes should be sequential and interrelated. Especially the passenger operational processes.

The results of the validation process were very positive as presented in Figures 8.3 through 8.10 with a short commentary on each.
It can be seen that 100% agreed and strongly agreed that the framework achieves the efficiency, effectiveness and satisfaction as referred to in Table 8.1. Due to the fact that both the airport and airlines experts have extensive experience in quality management, they would be able to understand the proposed framework.
Chapter Eight: Validation

It can be seen that 90% of reviewers agree and strongly agree on the Flexibility of the framework. Although there is one airport expert who answered neither agree nor disagree but did not give any feedback in particular.

![Figure 8.5: Expert Assessment of Framework Simplicity](image)

On simplicity, one airport expert commented that given the complexity of the chart, it might possibly be used as an overview chart, along with a zoomed in version, looking at processes individually. E.g. Arrive at airport, check in process in one chart. Passport check, departure of aircraft in another and arrival and customs check in another.
Chapter Eight: Validation

Figure 8.6: Expert Assessment of Framework Completeness

On completeness, Figure 8.6, airport expert commented that there is a need to add some details to the model, the most important of which are the following:

- Clarification of access classification such as airport accessibility, terminal accessibility and airside accessibility.
- Clarify the place of transit area clearly.
- Adding arrival area services such as hotels, car rental and tourism agents.

Figure 8.7: Expert Assessment of Framework Integration
Chapter Eight: Validation

It is noted that 90% of the reviewers agree and strongly agree on the integration of the framework as shown in Figure 8.7. Although there is one airport expert who answered neither agree nor disagree but did not give any feedback in particular.

![Figure 8.8: Expert Assessment of Framework Understandability](image)

According to Figure 8.8. It is noted that 90% of the reviewers agree and strongly agree on the Understandability of the framework. Although there is one airport expert answered neither agree nor disagree, but did not give any feedback in particular.

![Figure 8.9: Expert Assessment of Framework Implementability](image)
In Figure 8.9, one airlines expert commented that the framework is good in that it presents a basic overview of the processes involved in an airport model. However, it needs to be recognised that each node presented warrants significant expansion before the model will become usable in practice. This comment is not relevant at this stage because each of the service providers within the airport have their own policies and procedures that change continuously.

In Figure 8.10, it is noted that 90% of the reviewers agree and strongly agree on the Maintainability of the framework. Although there is one airport expert who answered neither agree nor disagree but did not give any feedback in particular.
Table 8.3 shows comments which were provided by airport and airlines experts and addressed in the revised version of the framework as shown figure 7.2

<table>
<thead>
<tr>
<th>No.</th>
<th>Comment</th>
<th>Expert</th>
<th>Quality factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Given the complexity of the chart, it might possibly be used as an overview chart, along with a zoomed in version, looking at processes individually. E.g. Arrive at airport, check in process in one chart. Passport check, departure of aircraft in another and arrival and customs check in another.</td>
<td>Airport</td>
<td>Simplicity</td>
</tr>
</tbody>
</table>
| 2   | There is a need to more details to the model, the most important of which are the following:  
- Clarification of access classification such as airport accessibility, terminal accessibility and airside accessibility.  
- Clarify the place of transit area clearly.  
- Adding arrival area services such as hotels, car rental and tourism agents.                                                                 | Airport | Completeness   |
| 3   | The framework is good in that it presents a basic overview of the processes involved in an airport model. However, it needs to be recognised that each node presented warrants significant expansion before the model will become usable in practice. This comment is not relevant at this stage because each of the service providers within the airport have their own policies that change continuously. | Airlines| Implementability |
8.4 Overall Chapter Conclusions

The results of the validity test of the proposed framework were positive. Positive ratings for all quality standards ranged from 90% to 100%. The answer was "strongly agree or agree". There were some important comments such as adding terminal accessibility and airside accessibility as well as arrival area which were taken into account when issuing the revised version of the proposed framework as shown in Figure 7.2.
Chapter Nine: Conclusion
Chapter Nine: Conclusion

9.1 Introduction

This chapter presents the summary of the work done by the researcher during the research period. Both theoretical and fieldwork. The chapter presents the aim and objectives revisited, the contribution to knowledge, and the limitations of the research. After that the recommendations for further work and finally the overall conclusions are presented.

9.2 Aim and objectives revisited

Awareness of Strategic Quality Management can provide a systematic framework for airports to manage the airport organizations. To move from local to international, the airport should be managed in an integrative manner of quality and strategy, as well as maintaining the standards of passenger services issued by international aviation organizations and reviewing and updating those standards periodically if necessary.

The aim of the research is to develop an understanding of the significance of applying SQM practices in the airport sector. SQM means the way of integrating quality management concepts in the context of strategic planning with a focus on operational processes. This aim is achieved through answering the following research question "How can the application of practices of Strategic Quality Management (SQM) be developed to assist airport managers and decision-makers in further developing airports?".

In order to answer this question the research aims to develop a new strategic quality management framework, specifically, it is intended to be applied for Libyan airports, which they are all single-terminal airports and still undergoing development.

In order to answer the research questions the following objectives were identified:
Objective (1) To explore, through a review of the literature, best practice of strategic quality management, in both manufacturing and service sectors, especially in relation to airport operations management.

Objective (2) To determine the key factors influencing passenger operational processes and their relation to the strategic planning of an airport.

Objective (3) To determine the factors influencing the passenger service quality using different evaluation methods.

Objective (4) To identify the key factors influencing the integration of quality management concepts and strategic planning in an airport.

Objective (5) Informed by the results of 1 to 4 above, to develop a new framework to assist decision-makers in applying best practice methods in the strategic quality management in the airport sector.

The following is a summary of the achievement status of research objectives identified in the early stages of this research, which are as follows:

Objective one: Exploring, through a review of the literature, best practice of strategic quality management, in both manufacturing and service sectors, especially in relation to the airport operations management.

Objective one has been fully met. Although the literature review is usually done in the first and second year at the latest, which is typically defined to review previous studies such as journals, books, articles, periodicals, reports, etc. However, the literature review phase continued even in the later years of the research.

The continuation of literature review was the result of the hypothesis of obtaining more facts and results from similar works, especially in the field of airports, in order to support the steps and results of this research. The study of
literature included three main areas: airport management, concepts of total quality management and passenger operations at the airport. Studies on airport management were presented in Chapter 2, which included a number of studies on several trends and concepts of airport management, and how the evolution of air transport operations is constantly changing. Most of the studies reviewed in this study indicate the complexity of airport operations, and the problems and difficulties in managing them efficiently. Studies have also shown that airport operations have become complex for several reasons, including the variety of services provided at the airport. These services require a diverse number of suppliers not connected to each other. The issue therefore needs a more holistic approach to managing those processes, meeting challenges and improving performance.

The studies on strategic quality management were presented in Chapter 3, which included a number of studies that explain what this approach is in the management of institutions, which combines strategic management and strategic quality management concepts, especially in the field of manufacturing. Studies on passenger operations are discussed in Chapter 4. This chapter also provides a detailed explanation of the concept of the service plan and how it is constructed and used in the analysis of service operations.

Based on the above, the researcher, in order to develop the proposed framework, adopted the following basic elements:

- The strategic part of the proposed framework is an attempt to find the relationship between the phases of strategic management (David, 2009) and the concepts of quality management (Tummala & Tang, 1995), this part of the framework is linked to the other part of the framework in terms of Customer Focus (CF) and Continuous Improvement (CI).
- Building of the passenger operations segment through the use of Service Blueprint based on the classification published by the Airport Council International (ACI).
Objective two: Determining the factors influencing passenger operations and their relation to the strategic planning of an airport.

Objective two has been fully met. The researcher was able to identify most key factors affecting those processes, which were in terms of customer focus and continuous improvement via a focus on the operations of passenger services. The use of Service Blueprint led to the identification of the key factors affecting passenger service operations, which constituted the bulk of the proposed framework. (As represented in chapters 6 and 7).

The focus was on passenger service operations for single-terminal airports, as the proposed framework was developed to be applied in both the Libyan and Irish airports. This is because the inputs of this framework basically came from both airports.

The results of the analysis of passenger services operations consisted of not only visible activities, but also detailed the customer's back room activities, which were critical activities that have an impact on performance improvement, as well as support activities such as information systems, handling systems and security surveillance.

Objective three: Determining the factors influencing the quality of the passenger service using different evaluation methods.

Objective three has been fully met. A review of the literature revealed that there are many aspects to assessing the behavior of airport customers, in terms of evaluation methods and how to use them, as well as the views of passengers towards the services provided. It is a critical path in order to reach the most important factors affecting the service.

This research focused on two important parts: first, the methods used to evaluate the service by the passengers at the studied airports; secondly,
identifying the perspectives of passengers by surveying their opinions at both Misurata and Shannon airports, as well as taking data prepared by Cork Airport. The proposed framework is mainly designed to establish the link between strategic and operational aspects in terms of customer focus (customer satisfaction) and continuous improvement. The results obtained indicate that the focus on the customer focus through the use of multiple evaluation methods such as hand-survey, online-survey (airport website), smiley faces method, and reviews on the website. All these tools are very useful not only in continuous improvement, but because they represent an important part of the airport operations management framework in an integrative manner between quality and strategy.

**Objective four:** *Identifying the factors influencing the integration of quality management concepts and strategic planning in an airport.*

Objective four has been fully met. The factors influencing the integration of quality and strategy at the airport were determined by surveying the opinions of the respondents at both the airport and the airlines. The results are explained in Chapters 6 and 7, where the proposed framework has been developed. In addition, the researcher was able to collect the point of view of the respondents on the relationships between the strategic planning stages and the strategic quality management concepts of the airport (as described in chapters 6 and 7). It is also possible to see this objective touching the strategic side further, so the selected sample may need to be expanded and this can be done in subsequent research to include equal groups of respondents from both the airport and airlines.
Objective Five: Informed by the results of objectives 1, 2, 3 and 4 to develop a new framework to assist decision-makers in applying best practice methods in the strategic quality management in the airport sector.

Objective five has been fully met. Although the proposed framework has been developed on the basis of input from experienced managers at both the airports and airlines. It was also validated by stakeholders from the airport and airlines, where the results were positive. However, a very limited number of participants in the validation process suggested that the framework need to be further improved and broken down into sections to make it easier to apply to the target airports. Therefore, the key useful suggestions from the respondents involved in the validity process were taken into account when introducing the revised version of the framework.

9.3 Significance of Research

The significance of this research comes from the importance of studying the application of strategic quality management concepts in the service sector, especially in the airport sector. Due to the fact that airports in Libya are still undergoing development, the management of the airport needs to apply such modern concepts, coming from the efforts of scientists in this area, especially quality management, not only the quality of traditional concepts but the strategic quality that seeks to achieve the most efficiency and effectiveness and the formulation of long-term policies for such sectors. According to the review of literature which indicated that there is a very limited number of studies that concern strategic quality management (SQM), along with focus on the passengers operational processes, particularly in the airport sector. According to the literature review, there is a lack of detailed studies treating quality management for airports. Based on literature reviewed this appears to be the first study concerning strategic quality management for the airport sector.
9.4 Contribution of Knowledge

There are a number of significant contributions that are expected to be achieved in completing this research as follows:

- This study contributes to knowledge by providing a sophisticated combination of tools and techniques that enables the development of a new framework for analyzing airport passengers operations and identifying factors influencing service quality.

- This research appears to be the first in terms of applying strategic quality management concepts at airports. Such research has not been done before, particularly in an airport.

- This research was an attempt to identify the relationship between the stages of strategic management and quality management concepts from the perspective of airport stakeholders, this attempt seems to be the first in field of an airport within the definition of strategic quality management.

- The final result of this study provided a new framework for applying strategic quality management concepts in the airport sector. In particular, this study contributes to implementing a new framework proposed in Libyan airports, which are generally undergoing development. It will be valid to be applied to other airports in different countries taking into account any local or regional changes needed.

- Using known methods, such as Service Blueprint but with a new interpretation of the results obtained after the application of those methods to the selected dimensions at the airport.

- Parts of this research have been published on an ongoing basis in conference proceedings and abstracts. The collected data can be published further in journal papers, books, or as book chapters.
9.5 Limitations of the research

Despite the fieldwork accessing key informants in the required industries and job functions, analysing additional airports and airlines facilities can give further considerations for the Strategic Quality Management framework. However, it was not feasible for the author to increase the scope of the fieldwork due to time and financial constraints.

Although the researcher was able to reach a number of important airports and airlines through their representatives (the respondents), there was a need to access more airports, as well as airlines. Due to the internal policies of these companies, the researcher was unable to collect more relevant data. It cannot be assumed that the totality of information available during case studies was captured.

9.6 Recommendations for Future Work

There are a number of gaps in our knowledge around strategic quality management in research that follows from our findings and would benefit from further research to extend and further test the framework which was developed in this thesis. An important result of such a project is a set of new questions that can be used as ideas for further research, as detailed research always unearths further questions.

This research has identified three primary projects in which future work can build on the Strategic Quality Management framework presented in this thesis:

- As a result of this research, most of the results came from the adoption of the view of airport experts more than airline experts, as the results of this research indicated that the majority of the problems are caused by airlines. Therefore, there is a need for further study on the application of strategic quality management concepts from the perspective of airlines.
Chapter Nine: Conclusion

- An additional study focuses on passenger operations and their relationship not only with customer focus concepts and continuous improvement, but also to their relationship with all quality management concepts. Such as leadership, strategic planning, employee participation, focused management, quality design and protection.

- As many airports provide services to passengers as well as air cargo users. Therefore, there is a need to study air freight service operations and to what extent the proposed strategic quality management model can be applied to air cargo.

9.7 Conclusions

Due to the significance of the airport as a vital organization within a country, it links it with the outside world and is an important contributor to the development of the economies of countries.

However, the airport is a complex organization consisting of many different activities provided by the airport, either directly or through stakeholders such as airlines, air carriers, ground services, fuel, food and drink.

The complex nature of the airport requires the management of its activities in an integrated manner with a focus on improving passenger services.

This research contributes to the field of the airport sector through presenting best practice based on an integrated framework for strategic quality management along with a focus on the passengers operational processes in terms of customer focus and continuous improvement aspects.

The strategic quality management model is based mainly on establishing the relationship between strategic planning stages and quality management concepts, as well as focusing on analyzing the operations of passengers to find the best practice in this regard, which will help the decision makers in the airport to improve performance, reduce delays and errors and improve quality of services.
The Strategic Quality Management (SQM) framework for the airport sector, as presented in this dissertation, was developed through two main phases: First: review of previous studies, and second: field work. The field work included three steps: two benchmarking case studies and survey-questionnaire for strategic quality management. Those steps are as follows:

- A benchmarking case study no. 1 is to study the passenger operational processes.
- A benchmarking case study no. 2 is to study the factors affecting passenger service quality.
- Using a survey-questionnaire to determine relationships between strategic planning processes and quality management concepts.

In terms of the scope of application of the framework, it is evident that airport managers, rather than airlines managers, are more likely to use the framework in their work. Therefore, airport management who wish to use this framework may find it prudent to implement Strategic Quality Management, in the long term. The positive results of the validity process support the adoption of the proposed framework which can be applied practically to the Libyan airports, most of which are single-terminal airports, then determining whether some necessary improvements were needed.

To obtain positive results through the application of the proposed framework, it is preferred to be applied at Libyan airports for a trial period. The components of the framework are familiar to those involved in both Libyan and Irish airports because they have been active contributors to its development. In implementing this framework in Libyan airports, there are likely to be some gaps because this framework was developed using the experience of Irish airports. There may be inconsistencies in the few legislation in force. Overall, this framework can be utilized when initiating strategic plans for these airports, taking into account local environmental conditions and legislation.
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Appendix I – Key Informant Letter of Invitation to Participate
Dear Respondent,

I am a PhD student in the industrial Engineering at National University of Ireland (NUI Galway) and I am conducting a study about service quality in the main airports in Libya and The Republic of Ireland. The objective of this research project is to measure the quality of services provided by the Libyan and Irish Airports to stakeholders, in particular, airline companies. Through your participation, I eventually hope to understand how best to satisfy the needs airlines and to identify the most important factors that could be opportunities for improvement at Libyan and Irish Airports.

Enclosed with this letter is a brief questionnaire that asks variety of questions about your point of view toward Services provided by the airport to your company. I am asking you to look over the questionnaire and, if you choose to do so, complete the questionnaire and send it back to me.

If you choose to participate, do not write your name on the questionnaire. I do not need to know who you are and no one will know whether you participated in this study. Your responses will not be identified with you personally, nor will anyone be able to determine which company you work for. Nothing you say on the questionnaire will in any way influence your present or future employment with your company.

It is estimated that it would take about 5 minutes from your time. Without the help of people like you, research on Libyan and Irish airports could not be conducted. Your participation is voluntary and there is no penalty if you do not participate.

If you have any questions or concerns about completing the questionnaire or about participating in this study, you may contact me at (085) 1893 158 or at r.abugeddida1@nuigalway.ie

Sincerely,

Ramadan Abugeddida
PhD student
Industrial Engineering Department.
National University of Ireland.
Appendices

Appendix II – Interviews Guide
Interview questions:

A) Car Parking :-

1) What is the most important issue that can effect on the serving of car parking?

……………………………………………………………………………………………………………..……

2) What is the newest methods (e.g. IT, Modern equipment or methods) that the airport use to improve the performance of car parking?

……………………………………………………………………………………………………………..……

B) Check-in :-

1) Do you see that using diverse methods for registration increase the Pax satisfaction and decrease the delay?

……………………………………………………………………………………………………………..……

2) Do you think that in the near future, the traditional methods for check-in will disappear?

……………………………………………………………………………………………………………..……

3) What are the check-in methods used in the airport, and not use as the most classified airports?

……………………………………………………………………………………………………………..……
Appendices

4) What are the biggest issues that face the use of modern ways of check-in?

...............................................................................................................................................

5) Do you think that there is interfere between airport responsibility and airlines responsibility in some cases?

...............................................................................................................................................

.............................................................................................................................................

C) Security inspection:

1) Is the security inspection used at the airport the same as for other Irish airports? Procedures, equipment, etc.

...............................................................................................................................................

2) What is the point of removing some items from the passenger's handbag if they can buy the same from the shops after the security inspections?

...............................................................................................................................................

3) Although most airports try to make the queue very short, but there is still a need to let the passengers wait, do you see that is because of the increasing the number of requirements for security inspection?

.............................................................................................................................................
Appendices

4) Do you see that the most important stage of serving the passengers is security check? If yes, Why?

..........................................................................................................................................................

5) What is the average time to complete security check?

..........................................................................................................................................................

D) Passport control :-

1) In many airports around the world, the departures must pass through the passport control desk. But here in Ireland is different, there is no passport control desk for the departures and they do not put the stamp on the passports. How do you know that the passenger departed or not the country?

..........................................................................................................................................................

Arrivals (Passport control) :

1) In your opinion, what is the biggest issue that can contribute to make a long queue in front of passport control desk?

..........................................................................................................................................................

2) Do you think there is a need for the passengers to be checked at arrival?

..........................................................................................................................................................
Appendices

* Luggage Claim:-

1) In your opinion, what is the main reason behind the delay of the luggage?

……………………………………………………………………………………………………………..……

* Transit :

1) Is there any transit cases at the airport, if yes, what is the main destination? and why?

……………………………………………………………………………………………………………..……

E) General Questions :-

1) To what extent do you agree that the standardization of passenger service procedures leads to improve the performance, reduced delays and increase customer satisfaction?

……………………………………………………………………………………………………………..……

2) Do you think that the merge both departures and arrivals lounges in one lounge is possible and useful?

……………………………………………………………………………………………………………..……

3) In your view, do you see that there are operations that are wrong or delayed for passenger operations? What do you suggest about these points?

……………………………………………………………………………………………………………..……
Appendices

Appendix III – Framework Survey - Questionnaire
Factors influencing the integration of quality management and strategic planning in the airport sector

Dear participant (managers)

This survey aims to identify the most important factors influencing the integration of strategic planning and quality management in the airport sector, and its role in the development of a new framework which will seek to continuously improve and contribute to the long-term competitiveness of the airport. I appreciate your cooperation in completing this questionnaire, and it will only take a few minutes to do so. All information provided will be handled with confidentiality and will be used for the purpose of scientific research only.

The researcher

*Required

1. Q1) Please indicate your age: *
   
   Mark only one oval.
   
   □ • Under 20
   □ • 20 to less than 30
   □ • 30 to less than 40
   □ • 40 and above

2. Q2) Please indicate your current position *
   
   Mark only one oval.
   
   □ Security Officer
   □ Operation Manager
   □ Passport Control Manager
   □ Strategy Director
   □ Customs Manager
   □ Other: ____________________________

3. Q3) Please indicate your highest level of education *
   
   Mark only one oval.
   
   □ Secondary school or below
   □ University
   □ Post-university (Graduate studies) level

4. Q4) Please indicate your experience in the airport sector *
   
   Mark only one oval.
   
   □ Less than 5 years
   □ 5 to 10 years
   □ More than 10 years
Factors influencing the integration of quality management and strategic planning

Factors influencing the integration of quality management and strategic planning in the airport sector

Based on your opinion as staff member at airport, please indicate your assessment (by ticking the correct answer).

5. Q5) To what extent do you agree that most of the senior managers at the airport understand well the importance of integrating quality management and strategic planning and its role in achieving high standards of quality and performance in service organizations *

Mark only one oval.

☐ Strongly disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly agree

6. Q6) To what extent do you agree that to achieve the correct application of strategic planning that quality concepts should be integrated with the strategic planning of the airport *

Mark only one oval.

☐ Strongly disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly agree

7. Q7) To what extent do you agree that the development of a vision precedes the analysis of the internal and external environments of the airport *

Mark only one oval.

☐ Strongly disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly agree

8. Q8) Quality improvement is the responsibility of everybody working at all levels in the airport *

Mark only one oval.

☐ Strongly disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly agree
Factors influencing the integration of quality management and strategic planning in the airport sector

9. Q9: To what extent do you agree that quality should be integrated into the airport's business strategy?

Mark only one eval.

☐ Strongly disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly agree

10. Q10: To what extent do you agree that if the airport is to stay competitive, the only way to do so is to formulate strategies to meet the environmental changes and challenges?

Mark only one eval.

☐ Strongly disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly agree

11. Q11: To what extent do you agree that engaging employees should be embedded in the stage of establishing goals and selecting strategies?

Mark only one eval.

☐ Strongly disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly agree

12. Q12: To what extent do you agree that the first priority objective of the airport should be focused on customer satisfaction rather than profitability?

Mark only one eval.

☐ Strongly disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly agree

13. Q13: To what extent do you agree that service design with built-in quality considerations effectively prevent the occurrence of defects?

Mark only one eval.

☐ Strongly disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly agree
8/18/2018

Factors influencing the integration of quality management and strategic planning in the airport sector

14. Q14) To what extent do you agree that continuous improvement (CI) should be embedded in all stages of strategic quality management implementation. 

   Mark only one oval.
   ○ Strongly disagree
   ○ Disagree
   ○ Neutral
   ○ Agree
   ○ Strongly agree

15. Q15) To what extent do you agree that feedback is very important for improvement and should preferably be implemented within the proposed strategic quality management framework.

   Mark only one oval.
   ○ Strongly disagree
   ○ Disagree
   ○ Neutral
   ○ Agree
   ○ Strongly agree

16. Q16) To what extent do you agree that one of the most important factors influencing the integration of quality and strategic planning is the improvement of operational processes by analyzing failures and delays.

   Mark only one oval.
   ○ Strongly disagree
   ○ Disagree
   ○ Neutral
   ○ Agree
   ○ Strongly agree

17. Q17) To what extent do you agree that improving passenger service operations is the most important part of all airport services.

   Mark only one oval.
   ○ Strongly disagree
   ○ Disagree
   ○ Neutral
   ○ Agree
   ○ Strongly agree
Appendices

Building a new framework of strategic quality management for airport sector

Factors influencing the integration of quality management and strategic planning in the airport sector

18. The table below consists two dimensions, strategic planning stages and quality core concepts, in your opinion which quality core concepts should be involved in one, some or all strategic planning stages. Please tick appropriate boxes (note: it is possible to tick more than one box in the same row).

Tick all that apply:

<table>
<thead>
<tr>
<th>Stage (1) Developing Vision</th>
<th>Leadership (LDR)</th>
<th>Strategic quality planning (SQP)</th>
<th>Design quality, speed and prevention (DQSP)</th>
<th>People participation and partnership (PP&amp;P)</th>
<th>Fact-based management (FBM)</th>
<th>Continuous improvement (CI)</th>
<th>Customer focus (CF)</th>
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<tr>
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<tr>
<td>Stage(3) Establish Objectives</td>
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<tr>
<td>Stage(4) Choose strategies</td>
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<tr>
<td>Stage(5) Implement Strategies</td>
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<tr>
<td>Stage(6) Evaluate strategies</td>
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</tr>
</tbody>
</table>

Passenger Service Processes

Based on your opinion as a staff member at airport, please indicate your assessment (by ticking the correct answer).

10. Q24 To what extent do you agree that the basic procedures for dealing with passengers at the airport are: security check, check-in and passport control?

Mark only one oval

〇 Strongly disagree
〇 Disagree
〇 Neutral
〇 Agree
〇 Strongly agree

20. Q25 To what extent do you agree that there are procedures for travelers in all airports around the world that should be universal?

Mark only one oval

〇 Strongly disagree
〇 Disagree
〇 Neutral
〇 Agree
〇 Strongly agree
Factors influencing the integration of quality management and strategic planning in the airport sector

21. Q26) To what extent do you agree that the multiplicity of security checkpoints at the airport enhances the security situation of passengers, airports and aircraft?

Mark only one oval.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

22. Q27) To what extent do you agree that the various procedures of service from one airport to the other may contribute to causing problems?

Mark only one oval.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

23. Q28) To what extent do you agree that the use of modern security inspection devices and their diversity contribute to improving the quality of airport security procedures?

Mark only one oval.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

24. Q29) To what extent do you agree that strict security inspection procedures contribute to increase passenger satisfaction?

Mark only one oval.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

25. Q30) To what extent do you agree that the security inspection procedures contribute to the creation of queues and the delay of flights?

Mark only one oval.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree
Appendices

26. Q31) To what extent do you agree that there should be a security inspection for the arrivals?

Mark only one oval.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

27. Q32) To what extent do you agree that the sequence of check-in procedures for passengers depend primarily on airlines? *

Mark only one oval.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

28. Q33) To what extent do you agree that the use of modern equipment and IT in the check-in stage contributes to improving the quality of services for travelers? *

Mark only one oval.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

29. Q34) To what extent do you agree that check-in procedures contribute significantly to the creation of queues and the delay of flights? *

Mark only one oval.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

30. Q35) To what extent do you agree that registration officer has an important role in the registration process? *

Mark only one oval.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree
Appendices

8/18/2018

Factors influencing the integration of quality management and strategic planning in the airport sector

31. Q36) To what extent do you agree that passport control procedures contribute significantly to the creation of queues and the delay of flights? 
Mark only one oval.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

32. Q37) To what extent do you agree that passport control procedures are more important when arriving than when departing? 
Mark only one oval.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

33. Q38) To what extent do you agree that the human element is the most important component of the passenger service process? 
Mark only one oval.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

34. Q39) To what extent do you agree that backstage services and support systems have an impact on improving the quality of services within the airport? 
Mark only one oval.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

35. Q40) To what extent do you agree that improving the design of passenger services, for example: security inspection, registration process and passport control should be taken into account while airport strategic planning and focusing on high quality standards? 
Mark only one oval.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree
Appendices

Appendix IV – Factors influencing on Service Quality Provided by Airport (Questionnaire)
Dear Participant

This is a questionnaire dealing with quality of the services provided to you by the Airport. I am using it to collect data for my research study of service quality. I appreciate your cooperation by filling the questionnaire. The questionnaire will take few minutes of your valuable time. All information provided will be treated with confidence and will be used for research purposes only.

The researcher

1. Please indicate your age:
   - Under 20
   - 20 to less than 30
   - 30 to less than 40
   - 40 and above
2. Please indicate your gender:
   - Male
   - Female
3. Please indicate your nationality:
   - Irish National
   - Non-Irish National
4. Please indicate your marital status:
   - Bachelor (Single)
   - Married
   - Other
5. Please indicate your highest educational level:
   - High school level or below
   - University level
   - Post-University (Graduate studies) level
6. Purpose:
   - Travel
   - Business
   - Others
7. Frequency: (per year)
   - Once
   - 2 – 3 times
   - 4 – 5 times
   - More than 6 times
8. Based on your opinion as passenger, please indicate your assessment of the performance level of the airport (by circling a number) for each of the following 41 features of its services using the following scale: according to a 5-point scale (1 = very unsatisfied to 5 = very satisfied)

Table 6.4 criteria and subcritical of service quality

<table>
<thead>
<tr>
<th>No.</th>
<th>Services Dimensions/Attributes</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Low ..... High</td>
</tr>
<tr>
<td>A</td>
<td>Ground transportation</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Convenience of ground transportation to/from the airport</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>2</td>
<td>Parking availability</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>3</td>
<td>Parking charges</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>4</td>
<td>Taxi services</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>B</td>
<td>Check-in services</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Check-in queuing time</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>6</td>
<td>Efficiency of check-in staff</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>7</td>
<td>Courtesy and Helpfulness of check-in staff</td>
<td>1 2 3 4 5</td>
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<tr>
<td>C</td>
<td>Departure security inspection</td>
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<tr>
<td>8</td>
<td>Waiting time at passport/ID inspection</td>
<td>1 2 3 4 5</td>
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<tr>
<td>9</td>
<td>Waiting time at security inspection</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>10</td>
<td>Attitude of inspection staff</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>11</td>
<td>Thoroughness of security inspection</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>12</td>
<td>Feeling of safety and security during security inspection</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>D</td>
<td>Signs and information</td>
<td></td>
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<tr>
<td>13</td>
<td>Clearness and accuracy of signs</td>
<td>1 2 3 4 5</td>
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<tr>
<td>14</td>
<td>Attractiveness of signs</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>15</td>
<td>Accuracy of flight information</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
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<td>Walking distance to the waiting lounge</td>
<td>1 2 3 4 5</td>
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<tr>
<td>17</td>
<td>Clear broadcasting of boarding and flight information</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>18</td>
<td>Provision of tourism information</td>
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<tr>
<td>E</td>
<td>Airport services and facilities</td>
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<td>Quality and prices of food and beverages</td>
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<td>Availability of banking, ATM, and money changing services</td>
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<td>25</td>
<td>Availability and comfort of seats</td>
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<tr>
<td>26</td>
<td>Wi-Fi access</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>27</td>
<td>Availability and convenience of restrooms</td>
<td>1 2 3 4 5</td>
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<td>28</td>
<td>Cleanliness of restrooms</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>29</td>
<td>Cleanliness of the terminal</td>
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</tr>
<tr>
<td>30</td>
<td>Services for disabled passengers</td>
<td>1 2 3 4 5</td>
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<tr>
<td>31</td>
<td>Availability and convenience of trolleys</td>
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<tr>
<td>32</td>
<td>Nursery room</td>
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<tr>
<td>33</td>
<td>Health center</td>
<td>1</td>
</tr>
<tr>
<td>34</td>
<td>Information desks</td>
<td>1</td>
</tr>
<tr>
<td>35</td>
<td>Cell phone charging facilities</td>
<td>1</td>
</tr>
<tr>
<td>36</td>
<td>Comfort of the terminal</td>
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</tr>
<tr>
<td>37</td>
<td>The efficiency of complaint handling</td>
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</tbody>
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**F**

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<td>4</td>
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<td>Attitude of inspection staff upon arrival</td>
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<td>Customs inspection</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Thank you for your co-operation.

Source: Airport Council International (ACI), 2011
Appendices

Appendix V : Validation Survey
The Framework of Strategic Quality Management for Airport (Framework Review)

This framework was developed to be applied to the Libyan airports which are still undergoing development, taking into account the factors affecting that environment, as well as learning lessons from the best practices of the Irish airports. The aim of this framework is to implement strategic quality management concepts through the integration of quality management concepts and strategic management stages at the airport, along with focus on customer satisfaction and continuous improvement of passengers operations.

*Required

Occupation *

Your answer

Please indicate your Area *

- Academic
- Airport Expert
- Airlines Expert
- Air cargo Expert

Please indicate your experience (years) *

Choose ▼
Please see the framework attached and rate your level of agreement with each of the quality factors presented below:

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree</th>
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* Please detail any comments or suggested modifications to the framework below.

Your answer