2016

Strategies to Implement ISO 9001 in a Government Organization in Jamaica

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2016

Abstract

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Doctoral Study Submitted in Partial Fulfillment

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December 2016

Abstract

Managers of government organizations in Jamaica often have difficulty implementing the International Organization for Standardization (ISO) 9001 standard. Jamaica's Minister of Industry, Investment, and Commerce considered ISO 9001 certification as critical for international competitiveness as lacking the standard had the potential to become a barrier to trade. The purpose of this single case study was to explore the strategies that managers of a government organization in Jamaica used to implement ISO 9001 successfully. The conceptual framework was the total quality management concept encompassing Deming's plan-do-check-act cycle. Data collection entailed organizational document reviews and semistructured interviews of 4 managers in an ISO 9001 certified government organization in Jamaica. Data analysis involved interview transcription, keyword and phrase coding, emergent theme identification, and methodological triangulation of the data. Findings were that successful implementation strategies to promote understanding of the ISO 9001 standard included both management commitment and leadership and ongoing awareness, training, and education. Other strategies were customization of the quality management system (QMS) implementation, continuous assessment and update of the QMS, and staff involvement. Social change implications include the potential for government managers and quality practitioners in Jamaica to use the study results to develop or improve strategies for ISO 9001 certification of organizations. ISO 9001 certification might lead to increased organizational competitiveness and enhanced business survival, which may result in the provision of job opportunities for community members and growth in Jamaica's economy.

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Dedication

I dedicate this study to my husband and my foster son who patiently stood by me and supported me emotionally during the course of my study. I also dedicate the study to my mother, sisters, the Williams' family, and my close friends who believed in me and encouraged me to stay the course. They kept me motivated and determined throughout the long, wearisome months while I toiled on to completion.

Acknowledgments

I believed that I could complete this doctoral journey through Christ who strengthened me. I am truly grateful to my Lord who saw me through the long days and night while I toiled on towards completion. I have become a stronger and more patient person because of the rigor of this doctoral study.

I thank my family, friends, classmates, and instructors for their support, prayers, and guidance on my path to completion. Dr. Patsy Kasen, my Chair, has been of invaluable assistance in continually encouraging me to move forward. Dr. Sarah Prince has not passed up an opportunity to assist me in overcoming my writing and APA challenges, and I am ever grateful to her. I also want to thank my former committee member, Dr. Jennifer Scott and my current members, Dr. Tim Truitt and Dr. Judith Blando, for their guidance and suggestions, which contributed to my doctoral study completion. I am grateful to my Methodologist, Dr. Gene Fusch for guiding me in the refinement of the study methodology. Thank you goes to Mr. Fred Walker and other Walden personnel for responding to my e-mails. Finally, I thank my classmates throughout my doctoral journey for the encouragement and support to complete the various modules and the study.

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Section 1: Foundation of the Study

Organizational survival and prosperity are not possible without quality (Brown, 2013). ISO 9001 QMS certification is becoming increasingly popular as seen by the increase in certificates issued (Boiral, 2012a). Between 2003 and 2010 certification increased by 123% worldwide (Priede, 2012). In many industries, certification to the ISO 9001 standard is becoming a prerequisite for doing business and a means of survival for businesses (Karim, 2013; Kartha, 2013). Although ISO 9001 certification is increasing, many business leaders face implementation challenges (Abdullah, Razak, Hanafi, & Jaafar, 2013; Holschbach, 2013; Kammoun & Aouni, 2013). The challenges business leaders encounter in implementing ISO 9001 have implications for competitiveness and merit further study.

Background of the Problem

Bodas Freitas and Iizuka (2012) noted that some empirical literature on international management standards such as ISO 9001 did not address management strategies for complying with the standards. Researchers noted that management of private and public sector organizations favors ISO 9001 compliance. The Federal Government of Malaysia mandated ISO 9001 implementation in government agencies inclusive of the local government (Abdullah et al., 2013). NASA was the world's first multisite government agency to receive ISO 9001 registration status (Sachdeva, Kukkar, Singh, & Shishir, 2012). In some government agencies and public sector organizations contracts for work will preferentially go to ISO 9001 compliant suppliers (Yu, To, & Lee, 2012). In Jamaica's sectoral debate presentation on June 20, 2012, the Minister of

Industry, Investment, and Commerce (MIIC) called for the management of local companies to improve the quality of goods and services through the implementation of ISO 9001 (Hylton, 2012). Minister Hylton saw ISO 9001 implementation as a means of increasing the international competitiveness of Jamaican export (Hylton, 2012).

The results of this study may provide strategies to assist managers in government organizations in Jamaica to implement ISO 9001 and may add to the body of knowledge for scholars and quality management practitioners. ISO 9001 implementation may lead to improved quality of goods and services and increased competitiveness in the global market. Improved organizational output may lead to improvement of businesses in the Jamaican economy and may contribute to Walden University's scholar-practitioner model.

Problem Statement

Jamaica has a challenge with international competitiveness as evidenced by Jamaica's ranking of 107 of 142 on the Global Competitiveness Index 2011-2012 (Hylton, 2012). ISO 9001 certification leads to increased competitiveness for organizations (Kafetzopoulos, Gotzamani, & Psomas, 2013; Karim, 2013; Kartha, 2013; Priede, 2012). In 2012, only 23 Jamaican organizations had ISO 9001 certification (Hylton, 2012). The general business problem is that managers of organizations in Jamaica often have difficulty implementing ISO 9001 successfully. The specific business problem is that some managers of government organizations in Jamaica lack the strategies for implementing ISO 9001 successfully.

Purpose Statement

The purpose of this qualitative case study was to explore the strategies that managers of a government organization in Jamaica used to implement ISO 9001 successfully. The target population comprised managers of one ISO 9001 certified government organization in Jamaica. The target population was appropriate for the study because ISO 9001 certification signifies conformity of the organization to the requirements of the ISO 9001 standard and successful implementation of the standard (Sachdeva et al., 2012). The managers of the ISO 9001 certified government organization in Jamaica had experience to share about the strategies used for ISO 9001 implementation. The implication for positive social change included the potential for managers of government organizations in Jamaica to improve the quality of their organization's goods and services, and enhance business sustainability and growth in Jamaica's economy.

Nature of the Study

The research is a qualitative, single-case study to explore the strategies that managers of a government organization in Jamaica used to implement ISO 9001 successfully. A researcher can obtain in-depth views from participants' when conducting qualitative research (Camfield & Palmer-Jones, 2013). Qualitative research fits the nature of the study because I did an in-depth exploration of participants' views on the strategies used to implement ISO 9001 in the natural setting of their organization. Qualitative research permitted the exploration of participants' views in the natural setting of their organization (Baur, 2014; Marshall & Rossman, 2011; McNulty, Zattoni, &

Douglas, 2013). Quantitative methods were not compatible with the research as the intent was to explore a central concept and not to test a link or to do examination and comparison. The quantitative method involves the use of inferential statistics and is suitable for theory testing and examination of cause and effect (Frels & Onwuegbuzie, 2013; Venkatesh, Brown, & Bala, 2013). The mixed method approach was not appropriate for the study because I did not use quantitative techniques to collect and analyze data to combine them with qualitative techniques in the study. The mixed method approach involves combining quantitative and qualitative research techniques in a single study (Frels & Onwuegbuzie, 2013; Glesne, 2011; Zachariadis, Scott, & Barrett, 2013).

I conducted a case study design because the case study design is best suited for a study in which the researcher wants to know how and why a situation exists (Yin, 2014). A case study approach for in-depth exploration of the contemporary phenomenon of how managers in a government organization implemented ISO 9001, allowed me to answer the research question. Yin (2014) favored the case study approach for the exploration of contemporary rather than historic events and in instances in which the researcher has limited control over behavioral events. Phenomenology as a research design was unsuitable for the study, as I did not focus on the lived experience of individuals (Glesne, 2011; Marshall & Rossman, 2011). Survey and archival analysis as research designs were inappropriate. The goal of the research was not to describe the frequency or prevalence of the ISO 9001 QMS implementation in Jamaica or to predict the outcome (Yin, 2014). I did not intend to manipulate the relevant behaviors in the study, so an

experimental design was not suitable (Glesne, 2011; Yin, 2014). History as a research design was inappropriate, as I had access to persons involved in the implementation of ISO 9001 (Glesne, 2011; Yin, 2014).

Research Question

The research question for the study was: What strategies did managers of a government organization in Jamaica use to implement ISO 9001 successfully?

Interview Questions

The case study comprised semistructured interviews and document reviews involving managers from an ISO 9001 certified government organization in Jamaica. I asked each participant ten interview questions:

1. How long have you been working in this organization?
2. What role did you play in the implementation of ISO 9001?
3. How was the planning for ISO 9001 implementation in the organization done?
4. What activities and processes did you use to implement ISO 9001?
5. How did you implement the activities and processes for ISO 9001?
6. How did you measure success at implementing the activities and processes for ISO 9001?
7. How did you address areas that needed change or improvement?
8. How did you address challenges, if any, that you encountered during implementation?
9. What recommendations would you give to other managers who want to implement ISO 9001 in their organization?

10. What other information (documents, comments, and recommendations) do you wish to share about your ISO 9001 implementation strategy?

Conceptual Framework

The conceptual framework is a secure base on which to build the foundation of a study and to which the researcher refers during the data interpretation stage of the study (Baxter & Jack, 2008). The conceptual framework underpinning this study was the total quality management (TQM) system concept. TQM is management's approach to uniting all functions and levels within an organization to focus on quality and continuous improvement (Milosan, 2011). The strategic approach to TQM has a focus on the working of the system to guarantee customers' satisfaction and the satisfaction of other interested parties (Giaccio, Canfora, & Del Signore, 2013). The objective of the TQM concept is increase in the efficiency and effectiveness of customer satisfaction (Milosan, 2011).

Deming proposed the TQM concept in 1940, but use of the concept did not begin until 1985 (Milosan, 2011). Deming prescribed 14 points that serve as guidelines for organizational behavior and QM practices (Giaccioet al., 2013). The fourteen points are: (a) constancy of purpose, (b) the new philosophy, (c) cease dependence on inspection, (d) end lowest tender contracts, (e) continually seek out problems, (f) institute training on the job, (g) institute supervision, (h) drive out fear, (i) break down barriers, (j) eliminate exhortations, (k) eliminate targets, (l) permit pride of workmanship, (m) institute education, and (n) top management commitment (as cited in Neave, 1987). Deming also coined the plan-do-check-act or PDCA cycle (Kuei & Lu, 2013). The adoption of

Deming's PDCA cycle purportedly leads to performance excellence as managers facilitate the establishment of systems for efficient process management (Mishra & Sharma, 2014; Zimnicki, 2015). Similarly, the current ISO 9001 standard is process oriented and has a continuous improvement system approach in the form of the PDCA model (Hoy & Foley, 2015). As depicted in Figure 1, the objective of TQM and the output from the ISO 9001 processes are synonymous. Both TQM and ISO 9001 have key factors for successful implementation (Hietschold, Reinhardt, & Gurtner, 2014; Milosan, 2011; Tigani, 2012; Vilkas & Vaitkevicius, 2013; Wahid, 2012). The TQM system concept encompassing Deming's PDCA cycle formed the conceptual framework on which I built the study. The interview questions followed the plan, do, check, act sequence of the PDCA cycle. I used the answers to the interview questions to provide answers to the main research question.

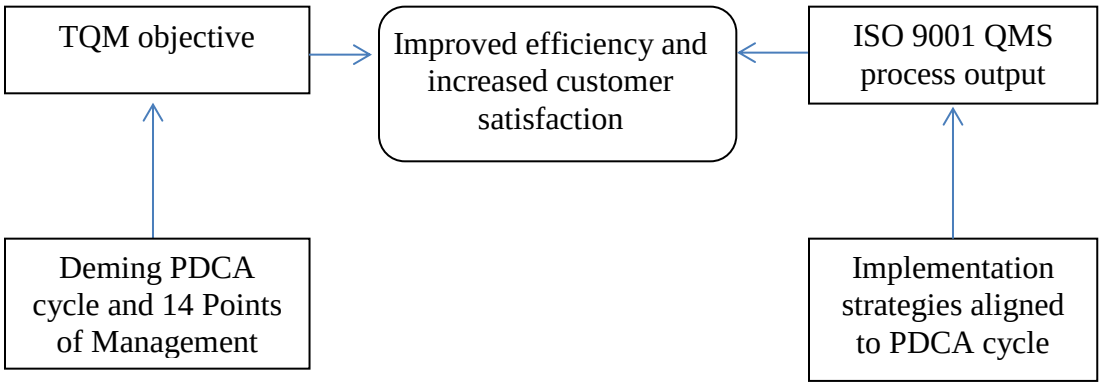

Figure 1. Conceptual framework

Operational Definitions

Certification: Certification is the issuance of a certificate of compliance signifying that the company's QMS is in conformity to the ISO 9001 standard as assessed by independent third-party auditors (Sachdeva et al., 2012).

Critical success factor (CSF): Fundamental components needing consideration and categorization for managing and implementing the organization's system and mission effectively are critical success factors (Psomas, Fotopoulos, & Kafetzopoulos, 2010).

ISO: ISO is the International Organization for Standardization that comprises an association of national standards bodies with technical committees for the preparation of international standards (ISO, 2015).

ISO 9000: ISO 9000 is the standard that provides the fundamental concepts, principles, and vocabulary for understanding and implementing a QMS (ISO, 2015).

ISO 9001: ISO 9001 is the standard that provides the requirements for a QMS (ISO, 2015).

Quality management (QM): Quality management is organizing and involving all employees in the macroeconomic affairs of the organization (Giaccio et al., 2013).

Quality management system (QMS): Quality management system is the set of activities of an organization which management uses to identify the organization's objectives and determine the processes and resources needed for the achievement of desired results (ISO, 2015).

Strategy: Strategy is a plan to achieve a goal through the efficient and effective use of available resources (Cravo et al., 2014).

Total quality management (TQM): Total quality management is the integrated approach taken by the management of an organization to create a focus on quality and continuous improvement at all levels and functions (Milosan, 2011).

Assumptions, Limitations, and Delimitations

This section includes the assumptions, limitations, and delimitations for the study. The assumptions include statements related to the research method and design, the people, their environment, and their interactions. The limitations include details of the scope and boundaries of the study. The delimitation has information about the problem and scope of the study and includes the rationale for the set boundaries.

Assumptions

An assumption is a statement of fact that is relevant to the study, but the researcher cannot control or verify the statement (Lips-Wiersma & Mills, 2013; Martin & Parmar, 2012). One assumption I made for the study was that the certification of the organization's QMS signaled successful implementation of the ISO 9001 standard. For the research, the purposive method of selecting the case for the study and the participants for interviews resulted in sufficiently experienced and knowledgeable participants. I assumed that participants were honest in answering interview questions.

Limitations

Limitations are factors that may arise during research and may or may not affect the results, but the researcher has no control over them (Mauch & Park, 2003). A limitation of the study was the nonrandom purposive sampling method for selecting the organization as the single case for the study. Another limitation was the short time limit

for the study. Yin (2014) proffered that the case study protocol increases the reliability of case study research significantly. I used a case study protocol for uniformity of interview questions and reduction of interviewer and participant biases.

Delimitations

Delimitations are the set boundaries that the researcher chooses to include or not include in the study (Guni, 2012). The purpose of this qualitative single case study was to explore the strategies that managers of a government organization in Jamaica used to implement ISO 9001 successfully. ISO 9001 implementation has other related problems that I did not choose to study such as the motivations, challenges, CSFs, and benefits. The study did not cover the foregoing related problems, as the aim was to alleviate the dearth of information available to managers of government organizations in Jamaica on the strategies they may use to implement ISO 9001. The other delimitations related to: (a) the qualitative single-case study approach, (b) the TQM conceptual framework and not the other supporting frameworks, (c) the decision to focus on the PDCA cycle of the TQM concept, and (d) the consequent interview questions that related directly to the steps in the PDCA cycle. The selection of the single-case study approach was because of the small number of ISO 9001 certified government organizations in Jamaica from which I could select the case for the study. The setting of the delimitations was consequent on the similarities of the ISO 9001 QMS model and the PDCA cycle of the TQM concept.

Significance of the Study

Contribution to Business Practice

The results of the study may be of value to business as the results may contribute to expanding the body of knowledge relating to the strategies used for successful implementation of ISO 9001 in organizations. Researchers saw a gap in exploring the factors and strategies used by managers of organizations to implement ISO 9001 successfully (Bodas Freitas & Iizuka, 2012; Heras-Saizarbitoria & Boiral, 2013a; Sampaio, Saraiva, & Rodrigues, 2009). The goal of the study was to provide managers of government organizations in Jamaica with strategies that managers of a similar organization used to implement ISO 9001 successfully.

Implications for Social Change

The findings of the research may potentially lead to more ISO 9001 certified organizations in Jamaica by providing managers of government organizations in Jamaica with strategies that managers may use to implement ISO 9001 successfully. Some researchers have suggested that ISO 9001 certification leads to increased competitiveness for organizations (Kafetzopoulos et al., 2013; Karim, 2013; Kartha, 2013; Priede, 2012). Jamaica's MIIC shared the similar view in the sectoral debate presentation on June 20, 2012 (Hylton, 2012). Other researchers have touted that registration to an ISO 9001 QMS has become a matter of survival for businesses and a prerequisite for doing business (Karim, 2013; Kartha, 2013). ISO 9001 implementation may enhance business survival and success and contribute to positive social change through growth in Jamaica's

economy. The study results may make a difference to businesses in the Jamaican economy, and contribute to Walden University's scholar-practitioner model.

A Review of the Professional and Academic Literature

The purpose of the literature review is for readers to obtain an understanding of the breadth of available studies conducted on the research topic. The review included the results of previous related studies, gaps in the literature, and strengths and weaknesses of the studies (Cope, 2014). The research topic was: Strategies to Implement ISO 9001 in a Government Organization in Jamaica. To address the strategies used to implement ISO 9001 in Jamaica, I examined scholarly peer-reviewed journal articles, dissertations, scholarly seminal books, and websites of professional organizations published or copyrighted within the last five years. To reflect the current state of the topic, I organized the review using the following headings: (a) Conceptual Framework, (b) Globalization and Competition, (c) Standardization and the ISO, (d) The ISO and MSS, (e) History of Quality Management, (f) QMS Adoption and ISO 9001, (g) ISO 9001 Adoption in Jamaica, (h) The ISO 9001 Standard, (i) Benefits of ISO 9001 Implementation, (j) Criticisms of ISO 9001, (k) Barriers and Success Factors for ISO 9001 implementation, and (l) Strategies to Implement ISO 9001 Successfully: A Gap in the Literature.

The review of the literature did not reveal any studies that directly addressed strategies used to implement ISO 9001 successfully in government organizations in Jamaica. The predominant focus of studies was the benefits of ISO 9001 in organizations in various industry sectors and the use of survey methods for data gathering (Bodas Freitas & Iizuka, 2012; Heras-Saizarbitoria & Boiral, 2013a; Sampaio et al., 2009). The

literature was deficient in management strategies for complying with international management system standards (MSS) such as ISO 9001 and in the use of qualitative methods (Bodas Freitas & Iizuka, 2012; Sampaio et al., 2009). Several studies included information on the main motivations for implementation, barriers, and CSFs faced by implementers of the ISO 9001 QMS standard (Hietschold et al., 2014; Holschbach, 2013; Kammoun & Aouni, 2013; Laosirihongthong, Teh, & Adebanjo, 2013; Tigani, 2012; Wahid, 2012). Despite the previous studies, the area of CSFs to successful ISO 9001 implementation merited further study (Heras-Saizarbitoria & Boiral, 2013a; Sampaio et al., 2009). The barriers to ISO 9001 implementation and the CSFs for successful ISO 9001 implementation may provide information to contribute to strategies to implement ISO 9001 successfully in organizations. I hope to address the specific business problem for this study by categorizing the activities associated with overcoming the barriers and adopting the CSFs for successful ISO 9001 in the *plan, do, check,* and *act* phases of the PDCA cycle.

I performed database searches of Business Source Complete/Premier, ABI/INFORM Complete, Emerald Management Journals, Sage Premier, Google Scholar, and Academic Search Complete. I used the following keywords or combination of keywords: *ISO 9000, ISO 9001, strategies, success factors, barriers, TQM,* and *quality management*. Access to the databases was through Walden University library link. Table 1 includes the summary of the literature reviewed showing categories of peer-reviewed journals, conference proceedings, seminal and contemporary books, and other types of references.

Table 1

Summary of Sources in the Literature Review

Reference Type	Less than 5 years since publication	More than 5 years since publication	No date (n.d.)	Total
Peer-reviewed journals	79	0	0	79
Non peer-reviewed journals	1	0	0	1
Seminal and contemporary books	0	0	0	1
Other	2	1	2	5
Totals	82	1	2	85

The purpose of this qualitative case study was to explore the strategies that managers of a government organization in Jamaica used to implement ISO 9001 successfully. The central research question specifically addressed the strategies used by managers of a government organization in Jamaica to implement ISO 9001 successfully. ISO 9001 addresses the QM aspect of TQM, which is the conceptual framework on which I founded the study.

Conceptual Framework

Total quality is about the involvement of people in all areas of the organization in the delivery of quality (Giaccio et al., 2013). TQM is management's approach to uniting all functions and levels within an organization to focus on quality and continuous improvement (Milosan, 2011). TQM became a central focus in the 1990s as the management of companies in the United States faced intense competition from their Japanese rivals (Brown, 2013). Management began to adopt Deming's and Juran's ideas that they had shared with the Japanese after the Second World War in a bid to experience

some of the acclaimed benefits of QM (Brown, 2013). Deming and Juran, among several *gurus*, have made valuable contributions to the theory and practice of TQM (Zairi, 2013).

In 1939, one year after employment with the Bureau of Census where Deming oversaw mathematics and advised on sampling, productivity for the Bureau increased approximately six-fold (Neave, 1987). Deming found that higher productivity resulted when organizations had established systems for monitoring, analysis, and control (Zairi, 2013). Deming's influence resulted in massive improvements for American manufacturers in quality during World War II, but after the war, the focus on quality diminished. Deming began to visit Japan in the 1940s. In 1950, Deming accepted an offer to lecture statistical methods for industry. With a change of focus to include working with management, Deming accomplished with the Japanese what was not possible with the American industrialists (Neave, 1987). Deming prescribed 14 points that were to serve as guidelines for organizational behavior and QM practices (Giaccio et al., 2013). In general, Deming advocated total quality control, continual improvement, teamwork, customer focus, and the value of people, as organizational assets (Neave, 1987). Deming's 14 points were to be core principles for effective leadership and management (Brown, 2013; Zairi, 2013). The following list of Deming's 14 Points for management is a summary of Deming's teachings to the Japanese in 1950:

1. Constancy of Purpose: Management should create the environment for and provide resources to achieve continual improvement.

2. The new philosophy: Management and workforce must work consistently toward the new mindset of continual improvement of systems, processes, and activities.
3. Cease dependence on inspection: Instead of conducting expensive inspections, ensure that purchased materials and manufacturing processes meet quality standards to deliver high quality, competitive products.
4. End ‘lowest tender’ contracts: Award purchases based on meeting quality measures and price. Develop mutually beneficial relationships with a select number of suppliers.
5. Continually seek out problems: Do not wait until problems arise. Continually examine all processes for areas of weakness so that there can be continual improvement of production and service systems and other company activities.
6. Institute training on the job: Equip management and staff with the necessary training to perform their jobs efficiently and effectively.
7. Institute supervision: Focus leaders on quality improvement so that they can assist in motivating workers to perform well.
8. Drive out fear: Implement the means for achieving adequate and proper communication throughout all levels of the organization so that workers can be effective and productive.
9. Break down barriers: Encourage teamwork in problem solving and job knowledge.

10. Eliminate exhortations: Instead of making unreasonable demands on workers, provide the resources they need to accomplish the assigned tasks.
11. Eliminate targets: Focus on proper supervision and assistance combined with statistics to achieve continual improvement in quality and productivity.
12. Permit pride of workmanship: Encourage workers and managers to improve the way they work by eliminating systems that stifle work pride.
13. Institute education: Provide workers and management with the necessary skills and training they need to keep updated with changes.
14. Top management commitment: Top management has the responsibility to lead the process of continual improvement and implementation of the preceding 13 principles so that the transformation of the organization happens (as cited in Neave, 1987).

The principles and practices of TQM and ISO 9001 are similar (Sivaram, Devadasan, Murugesh, & Sreenivasa, 2014). The practice of TQM has eight criteria (principles): (a) leadership, (b) customer focus, (c) process management, (d) employee management and involvement, (e) supplier management, (f) strategic planning, (g) human resource focus, and (h) information analysis (Ebrahimi, Wei, & Rad, 2014). The ISO 9001 standard has eight fundamental principles. The fundamental principles are (a) customer focus, (b) leadership, (c) involvement of people, (d) process approach, (e) system approach, (f) continuous improvement, (g) factual approach to decision-making, and (h) mutually beneficial supplier relationships (ISO, 2012; Sachdeva et al., 2012). Kuei and Lu (2013) asserted that managers could establish and improve QMS by

following QM principles and practices. TQM and ISO 9001 are two well-known initiatives for performance improvement through QM as seen from the principles detailed above (Brown, 2013; Yu, To, & Lee, 2012).

Deming coined the PDCA cycle in addition to the 14 points of management (Kuei & Lu, 2013; Zairi, 2013). The PDCA cycle comprises sequential steps for continually improving the quality of process outputs. The result of the *plan* phase of the cycle is an action plan for quality improvement derived from a situational analysis. The *do* phase involves the implementation of the action plan. The *check* phase consists of a determination of achievement versus plan based on the quality improvement activities of the action plan. The *act* phase involves the identification and normalization of techniques proven successful for continually solving problems (Zairi, 2013).

Similar to Deming's PDCA cycle, the ISO 9001 standard follows the PDCA model: a process orientation and a continuous improvement system approach (To, Lee, & Yu, 2011). According to the ISO 9001 standard, the result of the *plan* phase is an established set of objectives and processes for achieving customer requirements and the policies of the organization. The *do* phase involves the implementation of the processes. The *check* phase consists of comparing and reporting on the results of monitoring and measuring an organization's processes and products against set policies, objectives, and product requirements. Finally, the *act* phase involves carrying out the activities necessary for the continual improvement of process performance (ISO, 2008). Both Deming's PDCA cycle and ISO 9001's PDCA model are cyclical with emphasis on continual improvement of processes for delivering customer satisfaction.

The objective of TQM and the output from the ISO 9001 processes are efficiency improvement and increased customer satisfaction as shown in Figure 1. Just as TQM has key factors, ISO 9001 has CSFs for successful implementation (Hietschold et al., 2014; Milosan, 2011; Tigani, 2012; Vilkas & Vaitkevicius, 2013; Wahid, 2012). In this study, I focused on Deming's PDCA cycle as the conceptual framework to build the study of the strategies used in the successful implementation of ISO 9001 in a government organization.

The convergence theory perspective of management of quality includes support for the TQM conceptual framework of the study. According to convergence theory, management practices will eventually converge toward best industry practices (Mellat-Parast, 2013). The main drivers for the convergence theory are market forces and competition regardless of differences because of cultural and contextual factors (Mellat-Parast, 2013). The principles and practices of TQM and ISO 9001 are similar although both systems emerged at different periods. The objective of TQM and the output from the ISO 9001 processes are efficiency improvement and increased customer satisfaction as shown in Figure 1. Motivating factors such as market forces and competition are common for the implementation of both TQM and ISO 9001in organizations (Brown, 2013; Kartha, 2013; Priede, 2012).

The European Foundation for Quality Management (EFQM) model is an alternate conceptual framework based on self-evaluation. Assessment of companies against the EFQM model occurs based on the development of the TQM philosophy and systems within the companies. No certification-based reference for the model exists because the

model is a self-evaluation model adjudged as complex (Heras-Saizarbitoria et al., 2011). The conceptual framework of the EFQM model lies in contrast to the TQM framework for the current study as both the ISO 9001 and TQM frameworks have a PDCA cycle. The EFQM conceptual framework has no PDCA cycle. The specific business problem is that some managers of government organizations in Jamaica lack strategies for implementing ISO 9001 successfully. The adoption of Deming's PDCA cycle is an approach for establishing a system for efficient process management leading to performance excellence (Mishra & Sharma, 2014; Zimnicki, 2015). The current ISO 9001 standard is process oriented and has a continuous improvement system approach in the form of the PDCA model (Hoy & Foley, 2015). The objective of TQM and the output from the ISO 9001 processes are improved efficiency and increased customer satisfaction. I proposed that successful ISO 9001 implementation could follow the PDCA cycle with the various activities involved in the implementation categorized in *plan, do, check,* and *act* phases to keep with the PDCA cycle.

Globalization and Competition

Globalization is the shift in focus from economic activity within a national economy to a more integrated and interdependent economy that spans world boundaries (Ocloo, Akaba, & Worwui-Brown, 2014; Viswaprakash & Sentamilselvan, 2012). Globalization presents challenges and opportunities for organizations as its influence may be positive from the point of view of enhanced market opportunities, but negative from the point of increased competition (Ocloo et al., 2014). Consequently, those who anticipate increased business opportunities welcome globalization, but those who stand to

lose out because of competition shun globalization (Conti, 2013). Market liberalization (opening of the majority of markets) to free trade has compounded the competitive arena (Graham, Arthur, & Mensah, 2014; Ocloo et al., 2014). The establishment of the World Trade Organization (WTO) took place in 1995. WTO has oversight responsibility for the implementation of measures to reduce barriers (both tariff and non-tariff) to trade, and settling trade disputes (Irogbe, 2013; Viswaprakash & Sentamilselvan, 2012). A perception existed that the WTO promoted globalization and free trade, but not fair trade (Irogbe, 2013). As a result, inequality occurs in developed and underdeveloped countries because the WTO rules permit foreign investors to use cheap labor and escape environmental regulations in these countries (Irogbe, 2013). The converse to Irogbe's view is that of Viswaprakash and Sentamilselvan (2012) who saw globalization as a means of allowing governments of countries to specialize in their areas of strength. Viswaprakash and Sentamilselvan saw the provision of low-cost labor supply as the contribution of less-developed countries to increasing global efficiency.

Regardless of differing views, globalization has influenced organizations. Conti (2013) saw no alternative to globalization. Conti challenged that the only debate should be on how globalization was to happen. Assuredly, globalization's influence on world trade is increasing, and causing growing competitive pressure on organizations in their local markets, as well as in international markets (Ocloo et al., 2014). To remain in the marketplace organizations' goods and services must have a competitive edge (Ocloo et al., 2014). Several researchers affirmed that the implementation of QMSs increases an organization's competitiveness (Kafetzopoulos et al., 2013; Lo, Wiengarten, Humphreys,

Yeung, & Cheng, 2013; Priede, 2012; To, Lee, & Yu, 2012; Wolniak, 2013). Brown (2013) concluded that the introduction of QM in organizations contributes to survival and prosperity. ISO 9001 is the most widely used QM framework (Ollila, 2012; O'Mahony & Garavan, 2012). Several authors linked implementation of ISO 9001 to the attainment of better QM and cost competitiveness of products and services (Kartha, 2013; Sivakumar, Devadasan, & Murugesh, 2013; Starke, Eunni, Dias Fouto, & de Angelo, 2012). Kartha (2013) and Sachdeva et al. (2012) noted that ISO 9001 certification was becoming a requirement for conducting business in many industries. The researchers also noted that many customers required certification as a pre-requisite for conducting business. Respecting minimum standards has become the norm in the marketplace because of competition and selection (Goedhuys & Sleuwaegen, 2013). The ISO 9001 QMS has wide acceptance as a management system standard that fulfills the minimum quality system requirements for organizational processes (Sivakumar et al., 2013). Allur, Heras-Saizarbitoria, & Casadesús, (2014) recommended ISO 9001 implementation in a manner which will improve routine practices instead of pursuing certification and maintenance of a QMS designed for the minimal level. The ISO 9001 standard that is at the focus of this study is one of many international standards developed by the ISO.

Standardization and the ISO

Standardization of products and production, results in reduced production costs and prevention of obstacles in the production process (Giaccio et al., 2013). Standardization is beginning to replace traditional public regulation, as it can be a fuel for international trade through the removal of barriers resulting from various national

practices. There is no regulatory power at the global level to design, implement, and enforce standards (Heras-Saizarbitoria & Boiral, 2013a). As a result, standards are voluntarily adopted rules used to maintain social order (Sandholtz, 2012). The largest developer and publisher of voluntary standards worldwide is the ISO (Sachdeva et al., 2012). Voluntary standards are self-regulatory rules adopted by organizations independent of public law. Management can better detect and adapt to stakeholders' concerns by using voluntary standards (Simpson, Power, & Klassen, 2012).

The three main international organizations governing standardization are the ISO, the International Electrotechnical Commission, and the International Telecommunication Union. In conjunction with the WTO, the three institutions have formed a strategic alliance named the Agreement on Technical Barriers to Trade. The aim of the alliance is promoting the creation of a free and equitable global trading system (Heras-Saizarbitoria & Boiral, 2013a). Among these organizations, the ISO is the largest standards developing organization in the world (Sachdeva et al., 2012; Sandholtz, 2012). International standards are beneficial for the planet, trade officials, government, businesses, innovators, customers, and consumers. The extensive application of international standards by managers of organizations worldwide facilitates global competition. The application of international standards speeds up innovation, broadens customers' choices, and provides the technical means for establishing and implementing political trade agreements (Sachdeva et al., 2012). International standards provide the basis for the government of developing countries to decide where to focus their scarce resources when operating in export markets (Sachdeva et al., 2012). ISO 9001 and ISO

14001 are the main international management system standards (MSS) adopted in over 1.3 million organizations worldwide (Heras-Saizarbitoria & Boiral, 2013a).

The ISO and MSS

The ISO Survey for 2011 recorded significant increases in ISO MSS certifications (Heras-Saizarbitoria & Boiral, 2013a). ISO's MSS is the umbrella term for several standards for quality, environment, medical devices, food safety, energy, and information security management (International Organization for Standardization [ISO], n.d.a). Some of the better-known MSS are ISO 51001 for energy management, ISO 14000 series for environmental management, ISO 9000 series for QM, and ISO 22000 for food safety management (ISO, n.d.a). MSS are important because a wide range of business activities incorporates MSS for QM, environmental management, occupational health and safety, and corporate responsibility to name a few (Boiral, 2012a).

Standardized MSS have become important and have received increased attention in the management practice field (Simon & Douglas, 2013). MSS provide a model for setting up and operating a management system and can be beneficial in the delivery of global management experience and good practice. When implemented effectively, a management system can result in resource efficiency, improved risk management, and improved customer satisfaction from products and services that consistently meet customers' needs (Gamboa & Melao, 2012). MSS have different foci that influence global business issues such as environmental management, occupational health and safety management, energy management, and food safety (ISO, n.d.a). Managers of organizations have increasingly sought certification to various MSS to improve their

quality, environmental, and other management practices (Simon & Douglas, 2013). Integrating management systems has become a point of consideration in organizations with several management systems. The process is not the same in all organizations. The level of integration of the management systems depends on the model used for the integration process, the motivation of the company's human resources, or the order of implementation of the management systems (Bernardo, Casadesus, Karapetrvic, & Heras, 2012).

While the practices of MSS differ in scope, there is the common aim of improved efficiency and effectiveness in industries (ISO, n.d.a). For example, the ISO 9001 QMS has wide acceptance as a MSS that fulfills the minimum quality system requirements for organizational processes (Sivakumar et al., 2013). ISO 9001 and ISO 14001 are the main MSS adopted by over 1.3 million organizations worldwide (Heras-Saizarbitoria & Boiral, 2013a). Notwithstanding, ISO 9001 is the most popular MSS worldwide (Ismyrlis & Moschidis, 2015). The popularity is because of the number of ISO 9001certificates issued and the number of countries involved in implementation and certification activities (O'Mahony & Garavan, 2012; Priede, 2012). A brief examination of the history of QM was prudent because the focus of this study was on the implementation of a QMS standard.

History of Quality Management

Changes in the world marketplace because of increasing demands from customers, market liberalization, and rapid technological changes among other factors, have led to intense competition nationally and internationally (Ocloo et al., 2014). The

system of QM developed as business focus changed from mass production, to marketing, then to global competition (Giaccio et al., 2013). During the late 1970s and early 1980s quality awards (such as Baldrige, Australian Quality Award) and frameworks (such as European Foundation for Quality Management) introduced by heads of governments and organizations, and adopted in many companies were the main means of introducing and promoting quality (Brown, 2013). The quality concept came into focus in the 1980s when global competition intensified and customers' expectations rose (Brown, 2013). In the 1990s, TQM became the popular program, but, by the end of the 1900s, business excellence became the new focus (Brown, 2013). Because of the failure to adopt quality programs in organizations, by the year 2000 quality became a term shunned by managers and CEOs (Brown, 2013). Despite the negativity associated with quality, implementing QM in many organizations served to lift the standard of quality as implementation yielded positive experiences and benefits (Brown, 2013).

Through the years, management of companies often implement QM tools and practices as a means of obtaining higher performance and business excellence (Psychogios, Atanasovski, & Tsironis, 2012; Sivakumar et al., 2013). The use of one or more continuous improvement processes was a major learning and improvement method employed by CEOs of Malcolm Baldrige Award winning organizations (Latham, 2013). Some of the better known quality programs implemented in organizations are: TQM, Six Sigma, Lean Six Sigma, ISO 9000; and business excellence tools and techniques such as: lean manufacturing, quality function deployment, and statistical process control (Brown,

2013; Ismyrlis & Moschidis, 2015; Manville, Greatbanks, Krishnasamy, & Parker, 2012; Psychogios et al., 2012).

The history of QM is not complete without mentioning some of the innovators who made significant contributions to the field of quality through the years. During the 1930s, Shewart, originator of the control chart, contributed to quality improvement through his view of variations (Bergman, Hellström, Lifvergren, & Gustavsson, 2015; Giaccio et al.; 2013). Shewart differentiated variation in manufacturing processes into components of assignable and unassignable causes. Shewart invented and publicized the control chart and the Shewart Learning and Improvement Cycle (Giaccio et al.; 2013; Neave, 1987).

Juran worked with Deming during the 1940s and like Deming, Juran focused on quality improvement and its cyclical nature (Zairi, 2013). During the 1950s, Deming and Juran taught the Japanese principles of QM and emphasized the inclusion of statistics in organizational process control (Zairi, 2013). Juran was a renowned statistician famous for the *Quality control handbook* (Giaccio et al., 2013). Juran's fame extended to the quality trilogy (quality planning, quality control, and quality improvement); *fitness for use* definition of quality; and the 10 steps to quality improvement (Bergman et al., 2015; Zairi, 2013). Contrary to Deming's view that there should be major cultural changes in the organization, Juran advocated working within an organization's existing business plan (Zairi, 2013).

Feigenbaum was the originator of total quality control in the 1950s and a contributor to TQM (Giaccio et al., 2013). Feigenbaum too placed emphasis on

continuous improvement in addition to employee involvement and teamwork (Zairi, 2013). Starting in the 1960s, Crosby wrote and talked about the idea of *cost of poor quality* (Giaccio et al., 2013). Crosby coined a 14-point plan for guidance in the rapid development of a quality improvement program (Zairi, 2013). Deming also presented guidelines for a new theory of management in the famous 14 Points of Management during the 1980s (Giaccio et al., 2013; Neave, 1987; Zairi, 2013). Ishikawa was the Japanese responsible for taking quality control and quality assurance methods from the factory and expanding it to business management during the 1980s (Giaccio et al., 2013).

QMS Adoption and ISO 9001

Since the late 1980s, management in many business sectors began to adopt a QM approach. The ISO 9000 series is the most widely used QM framework (Ollila, 2012; O'Mahony & Garavan, 2012). The ISO 9001 standard has wide adoption in many manufacturing companies (Sumaedi & Yarmen, 2015). Regardless of organizational size and sector, managers can apply ISO 9001 because the standard is a generic management system standard (To et al., 2011). Since 1993, the number of organizations with QMS certification has continued to increase (see Figure 2).

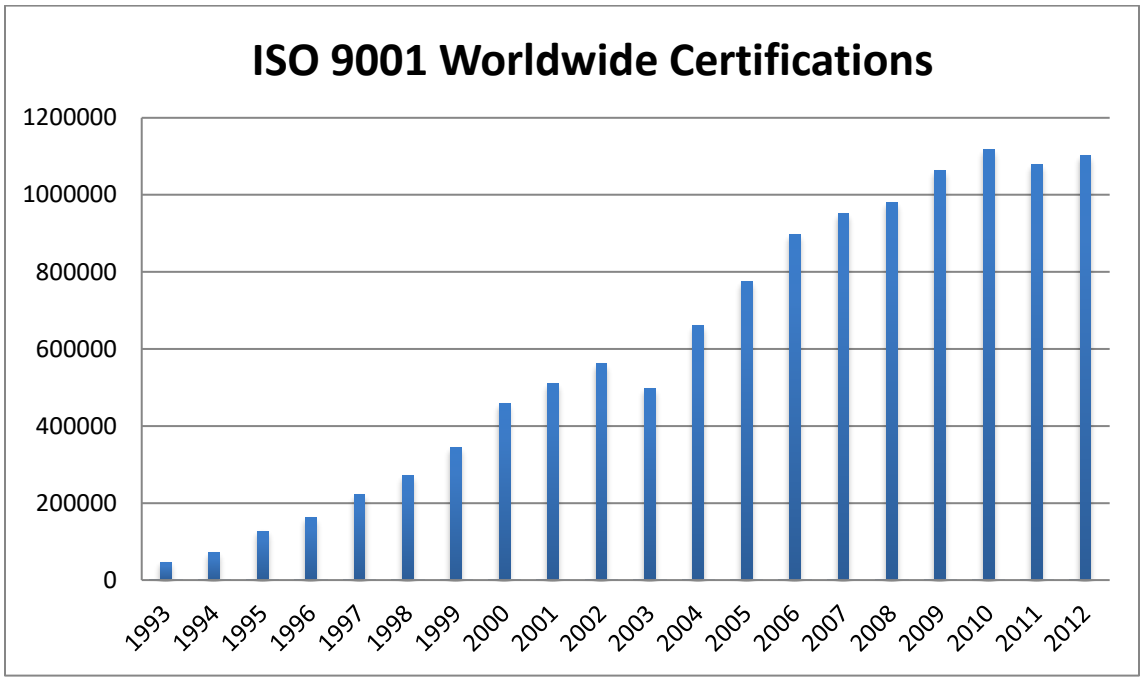

Figure 2. Issued ISO 9001 certificates in the world, the year 1993-2012. Source: Graph constructed by own elaboration based on data from the ISO survey 2012 (ISO, n.d.b).

ISO 9001 is applicable across several industry sectors, but some sectors have more certifications than other sectors. Llach, Marimon, and Bernardo (2011) analyzed the evolution of the worldwide diffusion of the ISO 9000 family of standards from 1998 to 2008. They used data from the ISO to do the analysis per industrial sector of activities. Llach et al. found that the top five sectors accounting for over 50% of ISO 9001 certifications were sequentially as follows: construction; basic metal and fabricated metal products; wholesale and retail trade; repairs of motor vehicles and motorcycles, and personal and household goods; electrical and optical equipment; and other services (Llach et al., 2011). I chose to focus on ISO 9001 because the standard is the

most widely adopted QMS standard and the one relevant to Jamaica's economic improvement.

ISO 9001 Adoption in Jamaica

Despite the wide adoption of ISO 9001 worldwide, the adoption in Jamaica is low as evidenced by the number of certificates issued since 1993. In 1995, the first two issuances of ISO 9001 certificates occurred in Jamaica (ISO, n.d.b). The highest number of ISO 9001 certificates issued in Jamaica up to 2013 is 26 (ISO, n.d.b). Jamaica's Minister of Industry, Investment, and Commerce singled out the ISO 9001 QMS standard as a voluntary standard that had the potential for becoming a barrier to trade (Hylton, 2012). In Minister Hylton's sectoral debate presentation on June 20, 2012, he shared the plan for the promotion of the standard through the Ministry of Industry, Investment, and Commerce and the Bureau of Standards. The Minister emphasized the mandate for the certification of Jamaican companies to the ISO 9001 standard as a means of enhancing their international competitiveness (Hylton, 2012). The Minister's choice of the ISO 9001 standard as a means of facilitating global trade and increasing competitiveness has support from numerous researchers (Heras-Saizarbitoria & Boiral, 2013a; Kafetzopoulos et al., 2013; Karim, 2013; Kartha, 2013; Priede, 2012). The Minister, like several researchers such as To et al. (2011) and Yu et al. (2012), believed that ISO 9001 implementation would be beneficial to public organizations, as it may result in enhanced organizational performance. Minister Hylton's notion that in private sector organizations the results would be increased customer satisfaction, higher sales, and improved

competitiveness, has support from several researchers (Lo et al., 2013; Priede, 2012; Sannassee & Kawthar, 2013).

Hylton (2012) shared the decision to focus the Ministry on the improvement of Jamaica's business environment and enhancement of economic competitiveness. Jamaica, as a signatory to the EPA and Treaty arrangements in the Caribbean Community, must achieve and maintain a balance between the negotiated benefits and the burdens of the trading arrangements (Hylton, 2012). Competitive production and pricing in the marketplace were two strategies the Minister gave for achieving and maintaining that balance. The Minister bemoaned Jamaica's lack of international competitiveness as the source of economic woes and increased trade deficits based on Jamaica's ranking of 107 out of 142 on the Global Competitiveness Index 2011-2012 (Hylton, 2012). Minister Hylton pointed to the increasing importance of standards in competitiveness, especially because of the intensification of market globalization and the integration of countries' economies. The Minister reiterated the importance of closer working relations between the management of Jamaican businesses and the Bureau of Standards in Jamaica to ensure compliance with the relevant compulsory and voluntary standards (Hylton, 2012). In 2010, Minister Hylton took a policy decision to implement ISO 9001 in the agencies within the Ministry of Industry, Investment, and Commerce (Hylton, 2012). The Minister was instrumental in the establishment of the National Certification Body of Jamaica (NCBJ) to provide assessment and certification of qualified companies to the ISO 9001 standard (Hylton, 2012). The results of my study may assist managers of government organizations in Jamaica to implement the ISO 9001

QMS successfully. Certification of Jamaican organizations to ISO 9001 may result in the facilitation of global trade and increased competitiveness thus fulfilling the Minister's vision for enhancement of Jamaica's competitiveness.

The ISO 9001 Standard

Since the publication of the ISO 9001 QMS standard in 1987, there has been internationally significant growth in the standard's popularity. The growth is because of the rapid increase in the number of organizations certified to ISO 9001worldwide (Boiral, 2012a). The ISO management system model pioneered by ISO 9001 continues to be a popular standard as evidenced by the 123% increases in the number of ISO 9001 registrations between 2003 and 2010 (Priede, 2012). The popularity of the ISO 9001 standard may be because of its positive influence on organizations (Boiral, 2012a). Researchers have touted that successful ISO 9001 implementation in organizations is beneficial for several reasons (Kafetzopoulos et al., 2013; Priede, 2012; To et al., 2012). The main reasons include providing a competitive edge for organizations and economies (Kafetzopoulos et al., 2013; Ismyrlis & Moschidis, 2015; Priede, 2012); and better corporate performance, product quality, and marketing edges (To et al., 2012).

ISO 9001 is one of a series of standards that provides definition of the QM guiding principles. The standard includes the requirements for certification, and guidelines for the establishment of procedures, processes, and product and service quality (Gamboa & Melao, 2012). The ISO technical committee (TC) 176, established in 1979, has responsibility for QM and quality assurance standards. ISO/TC 176 members issued the first release of the ISO 9001 standard in 1987 (Giaccio et al., 2013; To et al., 2011).

The release of the standard was to foster international trade (Bodas Freitas & Iizuka, 2012). Since 1987, three revisions of the standard have taken place: 1994, 2000, and 2008 (Brown, 2013; Yu, To, & Lee, 2012.). The 2000 revision of the ISO 9001 standard aligned it with TQM as both concepts shared common principles and the aim of organizational improvement (Brown, 2013). Prior to the year 2000, ISO certificates issued were for ISO 9001, ISO 9002, and ISO 9003. Since 2001, certificates issued were for a single ISO 9001 standard (Sachdeva et al., 2012). The 2000 and 2008 versions of the ISO 9001 standard have emphasis on process orientation and a continuous improvement system approach in the form of the PDCA model (To at al., 2011). Both versions of the standard (2000 and 2008) have five requirement clauses: (a) quality system; (b) management responsibility; (c) resource management; (d) product realization; and (e) measurement, analysis, and improvement (Sivakumar et al., 2013).

The base of the ISO 9001 standard is the formation of a quality system which requires management support (Sivakumar et al., 2013). The ISO 9001 QMS consists of customer-oriented processes, support processes, and management processes (Chen & Cheng, 2012). A documented description of the implemented QMS is necessary prior to certification of a company's QMS to ISO 9001. Subsequently, independent third party auditors will assess the implemented system for compliance with the requirements of the ISO 9001 standard (Giaccio et al., 2013; Sachdeva et al., 2012). If compliant, the company's management receives a certificate of compliance that remains valid over a defined period that includes reassessment of the company's QMS for compliance (Sachdeva et al., 2012).

The implementation of the quality system results in continual improvement of the quality of products, processes, and organizational performance. The application of the appropriate resource assists in product realization (Sivakumar et al., 2013). In addition to process improvement, the benefits accrued by the implementation of ISO 9001 are many and varied.

Benefits of ISO 9001 Implementation

Implementation of the ISO 9001 QMS is beneficial to organizations irrespective of their size (Ismyrlis & Moschidis, 2015; Starke et al., 2012). Since the 1960s, QMS implementation has grown in its importance for providing a competitive edge for organizations and economies (Priede, 2012). Priede affirmed that the most effective tools for increased competitiveness for companies are QMSs. For example, in a study of 169 certified Greek food manufacturing companies, Kafetzopoulos et al. (2013) confirmed that effective implementation of ISO 9001 related positively and significantly to competitive performance of the companies. Specifically, in developing countries, Goedhuys and Sleuwaegen (2013) found that the use of international standards such as ISO 9001 stimulated international trade. Karim (2013) acceded that ISO 9001 certification is no longer merely to position a company to be more competitive in business, but is becoming a means of survival for businesses. In many industries, certification to the ISO 9001 standard is becoming a prerequisite for doing business (Kartha, 2013).

Many papers about the qualitative benefits of ISO 9001 implementation are in publication (Aba & Badar, 2013; Kadasah, 2012; Priede, 2012). Ismyrlis and Moschidis

(2015) determined that improvement of the quality system, customer satisfaction, and corporate image were the top benefits to Greek companies certified to the ISO 9001:2008 standard across all sectors of the economy. Customers have become demanding and sensitive to product and service quality (Pingitore & Williams-Dalgart, 2012). When customer satisfaction levels are high, customer retention is strong (Pingitore & Williams-Dalgart, 2012).

Kadasah (2012) found the following five main benefits in the private sector in Saudi Arabia: (a) increased quality awareness; (b) improved efficiency of the QMS, quality of products, inspection methods, and time to produce finished goods; and (c) a reduction in defect rate and waste. Other benefits included improved consistency of output, constant measurement of quality, taking corrective actions against defects, reduction in defects, cost reduction, retained or increased market share, increased sales or revenues, and lower production cost (Priede, 2012). For Australian and New Zealand ISO 9001 certified companies, Prajogo, Huo, and Han (2012) found that advanced and supportive implementations of ISO 9001 certification related directly to supply chain activities and to improved operational performance. Boiral (2012a) conducted a systematic review of 111 empirical papers published between 1994 and 2008 on the influence of ISO 9001 on organizational effectiveness. The results of the review showed that ISO 9001 implementation had a positive influence on organizations' internal and external strategic and managerial variables. The internal operational variables were productivity, quality improvement, cost and waste reduction, QM, and human resource management (Boiral, 2012a). Examples of the external strategic and managerial

variables influenced were improvement of relationships with customers and suppliers, financial performance, organizational effectiveness, exports, image, and competitive advantages (Boiral, 2012a). In a review of 81 articles about ISO 9001 done by Tarí, Molina-Azorín, and Heras (2012), they found that the unanimous benefits of ISO 9001 related to internal performance or operational results, customer results, and people results.

In publicly held companies in Brazil, ISO 9001 certification resulted in increased sales revenue, decreased cost of goods sold or sales revenue, and increased asset turnover ratios of the certified firms (Starke, et al., 2012). ISO 9001 certified companies in Mauritius had increased sales and by extension a larger customer base and more loyalty and confidence than their non-certified counterparts (Sannassee & Kawthar, 2013). Psomas and Kafetzopoulos (2014) found that ISO 9001 certified Greek manufacturing companies significantly outperformed non-certified companies for factors relating to the internal business environment (product quality, operational, and financial performance) and external business environment (customer satisfaction and market share). From a study of manufacturing organizations from 59 countries, Goedhuys and Sleuwaegen (2013) concluded that international standards certification (for example ISO 9001) resulted in increased productivity and sales. In Polish organizations, management deemed financial (profit and profitability growth, and reduction of costs) and market (improvement of competitiveness and improved client relations) benefits as the most important. Management placed the least importance on organizational benefits such as

better knowledge of processes, increased employee satisfaction, and effective use of QM tools and methods (Wolniak, 2013).

ISO 9001 certification has a positive influence on quality-related factors such as scrap or rework, customer satisfaction, and employee satisfaction (Kartha, 2013). Yaya, Marimon, and Casadesus (2013) found that the relationship between customer satisfaction and loyalty improved with ISO 9001 certification. More benefits accrued to organizations when management implemented the QMS in industries with low-efficiency levels, low ISO 9001 adoption, high competitiveness, and high sales growth (Lo et al., 2013). ISO 9001 certification can result in organizational transformation to world class status (Sivaram et al., 2014).

Researchers recommended the adoption of ISO 9001 as a precursor to other quality programs, and for building an integrated management system (Sampaio, Saraiva, & Domingues, 2012). Typically, an implemented ISO 9001 QMS facilitates the adoption of other management systems, such as the ISO 14001 environmental management system, in response to external pressures from the domestic and international markets (Zhu, Cordeiro, & Sarkis, 2013). ISO 9001 and ISO 22000 implementations, when combined effectively, permit the establishment of unique and valuable quality practices and matchless capabilities (Kafetzopoulos et al., 2013). Psychogios et al. (2012) proffered that prior implementation of the ISO standard can lead to the enhancement of a quality-driven corporate culture necessary for the establishment of Lean Six Sigma in a service industry. Implementation of ISO 9001 can be the first step to achieving TQM (Kim, Kumar, & Kumar, 2011).

Researchers have used the degree of achievement of the ISO 9001 objectives: prevention of nonconformities, continuous improvement, and a focus on customer satisfaction, to assess the effectiveness of the standard (Bevilacqua, Ciarapica, Giacchetta, & Marchetti, 2013; Psomas, Pantouvakis, & Kafetzopoulos, 2013). Increasing the effectiveness of ISO 9001 implementation led to direct and significant improvement of product or service quality and operational performance of small to medium size service enterprises (Psomas et al., 2013). Productive performance improvement resulted from ISO 9001 certification, although, sometimes organizational drive for the implementation of ISO 9001 was because of external pressure such as customer request, company image, and competitive advantages (Bevilacqua at al., 2013).

Chen and Cheng (2012) opined that the adoption of a QMS should be a strategic decision of an organization's management. ISO 9001 implementation alone cannot account for the achievement of high performance within an organization (Boiral, 2012a). Before adopting ISO 9001, the management of organizations need to assess the reasons for implementing the standard as the influence of organizational and industry contextual level factors is important in the adoption of ISO 9001 (Lo et al., 2013). The motivation for ISO 9001 certification can be either internal or external motivation (Blessner, Mazzuchi, & Sarkani, 2013; Karim, 2013; Kim et al., 2011). Internal motivation relates to the quality of a company's products or services or internal performance (Blessner et al., 2013). External motivation is associated with increased business opportunities, improved company image, or improved customer perception (Blessner et al., 2013).

Management's motivation for ISO 9001 certification of an organization affects the results of certification. Certification is more likely to be successful if the motivation is because of internal and not external type factors (Guijarro, López-Rodríguez, Moral, Mena, & Álvarez, 2012; Ilkay & Aslan, 2012; Psomas & Antony, 2015). The higher the level of internalization of ISO 9001 the greater the benefits derived from implementation (Allur et al., 2014). Heras-Saizarbitoria and Boiral (2013b) found that the adoption of ISO 9001 into most small and medium-sized enterprises was in response to internal organizational factors as opposed to external pressures. The pursuit of ISO 9001 certification may be because of a combination of internal and external motives (Blessner et al., 2013). Some authors believed that the benefits to the organization might be insignificant if the motivation for implementation was to receive certification or eligibility for exporting (Guijarro et al., 2012; Ilkay & Aslan, 2012).

Criticisms of ISO 9001

Although the number of ISO 9001 registrations increased by 123% between 2003 and 2010 (Priede, 2012) controversial views about the standard's benefits and influence on organizations and product quality existed (Blessner et al., 2013; Foropon, & McLachlin, 2013; Kafetzopoulos et al., 2013). The perceived benefits of ISO 9001 registration seem to decrease over time because of the significant increase in number of ISO 9001 certified organizations. Boiral (2012a) conducted a systematic review of 111 empirical papers published between 1994 and 2008 on the influence of ISO 9001 on organizational effectiveness. The results revealed that implementers of the standard

frequently encountered problems of bureaucracy, lack of mobilization, and superficial integration of the standard.

Despite the many benefits of the ISO 9001 standard cited by some researchers, some people view ISO 9001 implementation unfavorably. Staff from Universiti Kebangsaan Malaysia had a positive perception of the effectiveness of the ISO 9001:2008 implementation on the university. Staff experienced less positive feelings about the standard's influence because of emotional pressure with its implementation (Muslim & Suradi, 2012). To obtain ISO 9001 certification, an organization goes through an auditing process which some view akin to a final exam. Some people liken the ISO certificate awarded to an organizational degree that is useful only for marketing purposes (Boiral, 2012b).

In a research of six ISO 9001 certified Portuguese companies to identify the benefits and costs related to each company's QMS, researchers could not conclude that QMS implementation led to company profitability (Sampaio, Saraiva, & Monteiro, 2012). Yaya et al., (2013) concluded that ISO 9001 certification does not influence customer perceptions of service recovery or customer satisfaction, perceived value, and loyalty based on a study of customers doing online banking. Kim et al. (2011) agreed that ISO 9001 certification was not a guarantee for increased organizational performance. Kim et al. recommended a clear understanding of the motivation for adopting the standard and the establishment of objectives for ISO 9001 implementation.

Barriers and Success Factors for ISO 9001 Implementation

Researchers identified numerous barriers to successful implementation of ISO 9001 (Abdullah et al., 2013; Holschbach, 2013; Kammoun & Aouni, 2013; Kim et al., 2011). Conversely, some researchers identified factors that make the implementation process successful (Hietschold et al., 2014; O'Mahony & Garavan, 2012; Jain, & Ahuja, 2012; Tigani, 2012; Wahid, 2012). Discovering and removing the barriers, and identifying and applying the factors that lead to effective ISO 9001 implementation may result in a similar outcome as exploring the strategies to implement ISO 9001 successfully in organizations.

Specifically, Holschbach (2013) identified a lack of support by top management as a critical barrier to the implementation of QM practices in companies. Kammoun and Aouni (2013) found that the barriers to certification among registered manufacturing companies in Tunisia were organizational aspects, and internal environment related to the poor communication between the partners, the lack of managers' training, the resistance to change, and the lack of leaders' commitment. Abdullah et al. (2013) concluded that the two main barriers to ISO 9001 implementation found in previous studies were lack of top management commitment and support and lack of training and education of employees.

The adoption of the ISO 9001 standard has taken place in private sector and in public sector organizations (Kafetzopoulos et al., 2013; Kammoun & Aounim, 2013; To et al., 2011). Yu et al. (2012) confirmed the adoption of ISO 9001 as a suitable QMS model for public organizations. The Indonesian government has mandated Grade 7

construction company contractors to develop and implement an ISO 9001 QMS to aid efficient and effective control of project activities (Willar, Coffey, & Trigunarsyah, 2015). In a study of 27 public organizations in Macao, China, the most important antecedent to successful implementation of ISO 9001 principles was leadership (Yu et al., 2012). The Federal Government of Malaysia wholly adapted the ISO 9001 standard in the implementation of their management system in their public sector in 1996 (Abdullah et al., 2013). Despite a federal government directive for ISO 9001 implementation, only a few Malaysian local government organizations had certification to ISO 9001. A study conducted by Abdullah et al. (2013) revealed that the five main barriers encountered during ISO 9001 implementation were: (a) lack of cooperation among internal departments; (b) negative perception or attitude toward quality among employees; (c) employees' culture toward quality; (d) lack of human resources; and (e) lack of involvement, cooperation, and commitment from employees. Two additional barriers were change of council president or mayor and a lack of a proper QM department (Abdullah et al., 2013).

Kim et al. (2011) proposed that the benefits of ISO 9001 implementation might be easier if implementers focus on success factors for implementation. Kim et al. identified 10 CSFs: (a) management leadership, (b) training, (c) involvement of everyone, (d) organizational resource, (e) quality-oriented culture, (f) customer-based approach, (g) process-centered approach, (h) communication and teamwork, (i) customizing the ISO requirements, and (j) quality audit. Kim et al. also believed that management of organizations might need to customize the ISO 9001 requirements to bring them in

alignment with the goals and strategies of the organization. Psomas and Antony (2015) determined that the CSFs for ISO 9001 effectiveness in small and medium enterprise manufacturing companies in Greece related to the internal business environment (company internal motivation, company attributes, and employee attributes). Successful implementation of ISO 9001 in Grade 7 Indonesian construction companies required (a) effective planning, operations and reviews; (b) continuous improvement of the QMS at every level of the organization; and (c) commitment of internal organizational stakeholders (Willar et al., 2015).

Mellat-Parast (2013) pointed to top management support and executive commitment (in leading and directing) as significant factors for successful implementation of quality systems in Iran's petroleum industry. More specifically, top management commitment was an acknowledged critical factor in the successful implementation of the ISO 9001 QMS (Tigani, 2012; Wahid, 2012). O'Mahony and Garavan (2012) noted that senior leadership and sponsorship, stakeholder engagement, the management of culture change, and, implementing quality processes were the four central factors for effective implementation of a QMS within the information technology division of a higher education institution. Laosirihongthong et al. (2013) identified leadership and people management as fundamental success factors for QMS implementation. Successful implementation of QM depended on the leadership support and commitment of a stable top management (Mosadeghrad, Ferdosi, Afshar, & Hosseini-Nejhad, 2013). Other success factors emphasized by researchers were (a) a quality team, (b) management commitment and support, and (c) communication with

and involvement of all members (Gamboa & Melao, 2012). Jain and Ahuja (2012) identified top management contribution, continuous improvement practices, and ISO 9001 implementation initiatives as success factors for QMS implementation.

Tigani (2012) found that quality awareness, communication, and culture affected the successful implementation of the QMS. Commitment of leaders and employees to QM methods was one factor associated with success of adopting the ISO 9001 standard (Vilkas & Vaitkevicius, 2013). Implementation success and derivation of benefits of ISO 9001 relied on several factors inclusive of engendering cultural values within employees' organizations (Abusa & Gibson, 2013). Wahid (2012) went beyond ISO 9001 implementation and certification to examine the CSFs for maintaining ISO 9001 in two case study service organizations. Wahid concluded that the CSFs for maintaining an effective ISO 9001 system were similar to those for ISO 9001 implementation. Wahid identified top management commitment, employee involvement, motivation and reward, continuous improvement, teamwork, and quality culture as the critical factors for successful ISO 9001 maintenance. Yu et al. (2012) highlighted leadership and customer focus as two factors essential for successful implementation of a QMS in particular ISO 9001. Despite the proliferation of studies done by researchers, the strategies for successful ISO 9001 implementation remained a gap for further research (Bodas Freitas & Iizuka, 2012). Table 2 includes a categorization of the various activities associated with overcoming the barriers and adopting the CSFs for successful ISO 9001 implementation in the *plan, do, check,* and *act* phases of the PDCA cycle as found in the literature review.

Table 2

Summary of PDCA Activities Categorized from a Review of the Literature

Plan	Do	Check	Act
Provision of resources for implementation. Creation of a quality-oriented culture.	Top management commitment and support. Training and education of managers and employees. Involvement of employees. Adoption of a customer-based or focused approach. Adoption of a process-centered approach. Proper communication and teamwork. Customization of ISO requirements. Motivation and reward for continuous improvement.	Quality audit. Communication measurements.	

Strategies Used to Implement ISO 9001 Successfully: A Gap in the Literature

Numerous studies exist on ISO 9001 implementation (Bodas Freitas & Iizuka, 2012; Boiral, 2012a; Heras-Saizarbitoria & Boiral, 2013a; Sampaio et al., 2009). The subjects of these studies were many and varied and included the benefits, influences, motivations, success factors, barriers, and integration of the standard. Perhaps the greatest focus has been on the benefits. In a review of 111 empirical papers on the

influence of ISO 9001 published in peer-reviewed journals between 1994 and 2008, Boiral (2012a), concluded that the majority of studies focused on the benefits of the standard. Bodas Freitas and Iizuka (2012), and Heras-Saizarbitoria and Boiral (2013a) supported Boiral's conclusion that researchers have studied the benefits of ISO 9001 implementation extensively. The subtopic on Benefits of ISO 9001 Implementation in this literature review indicates the extent of the articles with a focus on the captioned subject. A close examination of the many articles reviewed in this literature review revealed that the benefits accrued by organizations because of ISO 9001 implementation outweighed the criticisms found.

Many researchers focused on the influence of ISO 9001 implementation (Aba & Badar, 2013; Bevilacqua et al., 2013; Blessner, et al., 2013; Gamboa, & Melao, 2012; Goedhuys & Sleuwaegen, 2013; Kartha, 2013; Laosirihongthong et al., 2013; Psomas et al., 2013; Muslim & Suradi, 2012; Sannassee & Kawthar, 2013; Starke et al., 2012). According to Boiral (2012a), more than 80% of the 111 studies reviewed included conclusions about the positive influence of implementing the standard. Several researchers studied the barriers and CSFs for ISO 9001 implementation in organizations (Abdullah et al., 2013; Hietschold et al., 2014; Holschbach, 2013; Kammoun & Aouni, 2013; Laosirihongthong et al., 2013; Tigani, 2012; Wahid, 2012). Despite the array of studies done, Sampaio et al., (2009) thought that researchers should do further analysis of the CSFs for ISO 9001 certification. Although several subsequent studies included information about CSFs or conversely, the barriers to successful implementation of ISO 9001, Heras-Saizarbitoria and Boiral (2013a) still identified CSFs in meta-standards (ISO

9001 and ISO 14001) implementation as a knowledge gap in their research agenda for future research. Researchers studied the integration of QMS with other MSS such as ISO 14001 (Simon, Karapetrovic, & Casadesús, 2012). Bernardo et al. (2012), Kim et al. (2011), Sampaio et al. (2012), and Zhu et al. (2013) addressed questions related to ISO 9001 as a precursor for the adoption of other MSS. Simon and Douglas (2013) addressed location for the integration and the difficulties encountered, and Simon et al. (2012) addressed benefits of integration.

Bodas Freitas and Iizuka (2012) noted that some of the empirical literature on international management standards (ISO 9001 included) did not address management strategies for complying with the standards. Mellat-Parast (2013) wrote about the dearth of industry-specific studies in the field of QM. In the current study, I sought to bridge this gap by adding to the body of knowledge on the strategies to implement ISO 9001 successfully in government organizations in Jamaica.

Sampaio et al. (2009) noted that survey methodologies and descriptive statistics were the predominant methods of the majority of studies done on ISO 9001 implementation with less than 20% of 92 articles being case studies. Boiral (2012a) noted that only 5% of the 111 empirical studies done on the influence of ISO 9001 and published in peer-reviewed journals were qualitative studies. Authors of the studies reviewed on the success factors and barriers to ISO 9001 implementation and certification seldom adopted the qualitative or the case study approach as evidenced in Table 3. Stake (1978) and Yin (2014) recommended the case study method when

seeking to obtain details and understanding to allow thorough analysis of distinct phenomena, as was the aim of this study.

Table 3

Summary of Sources on ISO 9001 Success Factors and Barriers

Method	Sample	Author	Location
Quantitative	53	Abdullah, Razak, Hanafi, & Jaafar (2013)	Malaysia
Quantitative	56	Abusa & Gibson, 2013	Libya
Quantitative	Not stated	Bodas Freitas & Iizuka, 2012	Latin America
Literature Review	145	Hietschold, Reinhardt, & Gurtner, 20140	Not stated
Literature review & Qualitative multiple-case	2	Gamboa, & Melao, 2012	Portugal
Quantitative	252	Holschbach, 2013;	Austria, Germany, and Switzerland
Quantitative	96	Jain, & Ahuja, 2012	India
Quantitative	150	Kammoun & Aouni, 2013	Tunisia
Literature review	100	Kim, Kumar & Kumar, 2011)	Not stated
Quantitative	115	Laosirihongthong, The, & Adebanjo, 2013)	ASEAN countries (Indonesia, Malaysia, Philippines, Thailand, &Vietnam)
Mixed methods	1	Mosadeghrad, Ferdosi, Afshar, & Hosseini-Nejhad, 2013	Iran
Qualitative case study	1	O'Mahony & Garavan, 2012	Ireland
Quantitative	91	Vilkas & Vaitkevicius, 2013	Lithuania
Mixed methods case study	2	Wahid, 2012	Malaysia
Quantitative	18	Yu, To, & Lee (2012)	China

Transition

Section 1 was an introduction to the study giving details of the problem, purpose, nature, the conceptual framework, and research questions. The section continued with a definition of terms, followed by the assumptions, limitations, and delimitations of the research, and the significance of the study to social change and the body of knowledge. Section 1 ended with a detailed review of the professional and academic literature as well as a transition and summary. Section 2 begins with a restatement of the purpose of the study and includes the research method and design, population and sampling details, a description of the processes for assuring ethical practices during the research, data collection and analysis, and reliability and validity of the study. Section 3 includes the results of the study, an explanation of the application of the study to professional practice, the implications for change, and recommendations for future research.

Section 2: The Project

Section 2 of the study includes a description and justification of the research methodology and design processes. In Section 2, I focused on the techniques and methods I applied and the procedures I followed to explore, analyze, and interpret the specific business problem. The goal of the study was the expansion of information available to mangers of government organizations to implement ISO 9001successfully. Section 2 begins with a restatement of the purpose statement followed by a description of my role as researcher in the data collection process and details of the engagement and safeguarding of the study participants. The remainder of Section 2 includes details of the research method and design; population and sample; research ethics; data collection (instrument, technique, and data organization); data analysis techniques; and reliability and validity. The section closes with a summary of Section 2 and an overview of Section 3, the final section of the study.

Purpose Statement

The purpose of this qualitative case study was to explore the strategies that managers of a government organization in Jamaica used to implement ISO 9001 successfully. The target population comprised managers of ISO 9001 certified government organizations in Jamaica. The target population was appropriate for the study because ISO 9001 certification signifies conformity of the organization to the requirements of the ISO 9001 standard (Sachdeva et al., 2012) and successful implementation of the ISO 9001standard. The managers of ISO 9001 certified government organizations in Jamaica had experience to share about the strategies used

for ISO 9001 implementation. The implication for positive social change included the potential for managers of government organizations in Jamaica to improve the quality of their organization's goods and services and enhance business sustainability and growth in Jamaica's economy.

Role of the Researcher

My main role in the qualitative research was data collection and analysis. In qualitative studies, researchers acknowledge their role in the study and reflect on the part they play in the research process. A qualitative researcher performs the primary roles of data collection and inductive data analysis (Bluhm, Harman, Lee, & Mitchell, 2011; McNulty et al., 2013; Merriam, 2009). Whatever the need may be, interview is the main method of data collection in qualitative research (Bluhm et al., 2011) and case studies (Yin, 2014). Using a semistructured interview approach, I facilitated the interviews by asking open-ended questions using a prepared set of questions (see Appendix A) and an interview guide (see Section C of Appendix B) as a monitor for the collection of data. Merriam (2009) and Yin (2014) recommended the use of open-ended interview questions and an interview guide to facilitate qualitative interviews. In an effort not to collect biased information, I reviewed the skills and techniques for effective interviewing prior to conducting the interviews to keep with advice given by Glesne (2011) and Merriam (2009).

After conducting the interviews, I transcribed the tapes of the interviews verbatim, compared, and contrasted the responses of participants. According to Glesne (2011), Merriam (2009), and Yin (2014) verbatim transcription of the contents of

interviews can increase the accuracy of data collection. Member checking involves presenting and discussing research information with participants for them to give feedback on the accuracy of the collected data and the interpretation of the data (Andrasik, et al., 2014; Baxter & Jack, 2008; Glesne, 2011; Harper & Cole, 2012; Shenton, 2004). To enhance the reliability and validity of the data collection instruments I engaged in member checking to allow research participants to review my working draft to ensure that I had an accurate representation of their perspectives and interpretation of the study phenomenon.

Depending on the need, a researcher may perform additional data collection and analyses with the aim of refining initial information or predictions (Saunders, Lewis, & Thornhill, 2012). The researcher may also do in-depth investigations of complex problems (McNulty et al., 2013). In addition to interviews, I reviewed company documents to uncover data pertinent to the study that I can use in triangulating the study information (Shenton, 2004; Wahyuni, 2012; Yin, 2014). Researchers use interviews and document analysis to triangulate and corroborate emerging findings (Glesne, 2011; Merriam, 2009; Wahyuni, 2012; Yin, 2014). After the head of the case organization granted approval for document access, I asked participants during interviews to suggest documents for review that would provide information relating to the research question. With the assistance of the QMS representative, I arranged to review the suggested documents at a mutually convenient time and place. During review of the documentation, the focus was on information pertinent to the case study that would

enable corroboration and augmentation of evidence from interviews (Glesne, 2011; Merriam, 2009; Yin, 2014).

Data analysis followed, using an inductive approach to code the data (McNulty et al., 2013; Merriam, 2009; Yin, 2014), and develop themes with which to code the data collected (Bluhm et al., 2011). To explore, verify, and validate the themes that emerged in the case study, I used NVivo 10 computer-assisted data analysis software. I triangulated the coded data from interviews and documentation reviews as a means of validating the study (Bluhm et al., 2011).

This research was particularly relevant to me as a QM practitioner and a lead assessor for the NCBJ. During my 22 years as a QM practitioner, I have coordinated the ISO 9001 development, implementation, and certification efforts for private and public sector organizations. I have local and international exposure to several QMSs as a third party ISO 9001 assessor, thus expanding my knowledge, understanding, and sensitivity to the cultural and professional perspectives that may form part of this study. My QMS experience has assisted in shaping my views of the ISO 9001 implementation process. The expansive role, knowledge, and experiences gained from being a QM practitioner and third party lead assessor enhanced the quality of the interviews that I conducted.

I was a third party QMS auditor to the case organization in 2015 September. I have no current affiliation with the organization. After I received IRB approval to conduct the study at the organization and received permission from the head of the organization, I no longer conduct third party audits of the organization.

To ensure objectivity, the participants in the study had maximum flexibility to respond to the interview questions through face-to-face, telephone, or e-mail interview based on preference (Glesne, 2011). To increase the reliability of the study, I used a case study protocol containing an interview guide (see Section C of Appendix B) as a monitor for the collection of data, uniformity of the questions, and reduction of interviewer and participant biases. The protocol is a guidance document created to prompt the researcher's thinking during data collection (Yin, 2014).

Readers and authors of case study research must be aware of biases that could affect the final report (Merriam, 2009). Investigators are to apply the highest ethical standard to conducting research (Yin, 2014). Ethical issues connected to participant protection are of concern to qualitative researchers (Merriam, 2009). To ensure that I understand the ethical requirements involved in protecting human subjects, I successfully completed the web-based training course "Protecting Human Research Participants" with the National Institute of Health (NIH) Office of Extramural Research. My certification number is 1046527, and I completed the course on November 10, 2012 (see Appendix C). The Belmont Report protocol provides three guiding principles to conduct research involving human subjects: (a) beneficence, (b) justice, and (c) respect for persons (Cugini, 2015). I treated the research participants according to the basic ethical principles of the Belmont Report. I respected the study participants and acknowledged their autonomy. I did not use participants with diminished autonomy and exercised the following ethical principles: (a) obtain informed consent from participants, (b) protect participants from harm, (c) protect participants' privacy and confidentiality, (d) protect

especially vulnerable groups, and (e) select participants equitably (Yin, 2014). The Ethical Research section of this chapter includes details of the measures that I took to adhere to the foregoing ethical principles.

Participants

The purposive sample of participants for the study comprised top management, the QMS representative, and other managers who experienced the process of ISO 9001 implementation and certification. The purposive sampling strategy is one of screening and selecting appropriate participants for the study (Ando, Cousins, & Young, 2014; Leahy, 2013). The participants chosen for the study needed to meet the following criteria: (a) be a member of top management, or (b) be the QMS representative, or (c) be a manager, and (d) have experienced the implementation of ISO 9001 in the organization. The criteria were to ensure that the participants for the study were suitable based on background and experience to support the selected design and purpose of the research and to answer the questions for the case study (Yin, 2014). The QMS representative is an appointed member of the organization's management who has the responsibility and authority of ensuring (a) the establishment, implementation, and maintenance of the QMS; (b) reporting on the performance and needs of the QMS; and (c) promoting awareness of customer requirements throughout the organization (ISO, 2008). Members of top management, the quality management representative, and other managers of an organization have various responsibilities and authorities for the success of the ISO 9001 implementation program (ISO, 2008). The selected participants had the requisite

knowledge and experience to speak about the strategies used for successful ISO 9001 implementation.

Depending on the preference of the participant, I conducted individual, semistructured interviews via e-mail, telephone, or face-to-face (Glesne, 2011; McGuire et al., 2013; Rowley, 2012). The chosen participants for the study were members of top management, the QMS representative, and managers who had experienced the implementation of ISO 9001 in the organization. I identified the case organization from a list of ISO 9001 certified organizations on the NCBJ's website (National Certification Body of Jamaica, n.d.). I obtained the name and contact information for the head of the case organization from the organization's website. Initially, I contacted the head of the case organization by telephone. After I introduced myself and explained the purpose and goals of the research, I explained the criteria for participation, the confidential nature of the research, and the informed consent process. I requested permission to use the organization for the case study. After the head of the organization agreed to grant permission, I e-mailed the Letter of Cooperation as shown in Appendix D and the informed consent letter and form that participants would use. I encouraged the head of the case organization to review the letter, and I contacted the head of the organization by telephone to answer questions and give clarifications. I submitted the signed Letter of Cooperation to the Walden University Institutional Review Board (IRB) to confirm the community partner's approval for me to conduct the study at the case organization. IRB approval (no. 03-02-16-0305647) signified incorporation of the requisite level of ethical

standards for human subject research before proceeding with the research (Wahyuni, 2012; Yin, 2014).

To gain access to participants, I obtained the contact information for the QMS representative from the head of the case organization. I contacted the QMS representative by telephone, introduced the research and myself, and provided the criteria for participation. I asked the QMS representative for the contact information of potential participants for interview from the organization.

Each potential participant received an informed consent letter and form by e-mail providing details of the research. Potential participants had the opportunity to review the informed consent letter and ask questions by e-mail or telephone before making a decision. The letter included the goal of the research, the benefits, the extent of my role in the research, and the part participants would play to help to answer the research question. Participants' had a choice to either participate or not participate, and the right to withdraw without prejudice from the study at any time. The letter included assurance of the absence of foreseeable risks or harm to human participants, and that the nature and quality of participants' responses would be strictly confidential. Interviews would not include the recording of names or personal information. Participants' identities would remain confidential through the assignment of a numeric code to maintain confidentiality during coding and analysis (Wahyuni, 2012). The naming of the organization in the study followed a similar format of nondisclosure (Wahyuni, 2012). Audio tape recording of participant interviews took place only if the participant granted permission on the informed consent form (Yin, 2014). I did not offer incentives for participation in the

study. The head of the case organization and the participants received a one-page summary of the study results. Potential participants who agreed to engage in the study confirmed voluntary participation by e-mail consent prior to data collection (Glesne, 2011; Yin, 2014).

The consent form included a statement that during and at the end of the research, storage of physical data collected would be in a locked file cabinet at my home for a minimum of five years to protect participants' rights (Wahyuni, 2012). The storage of electronic data was in password-protected files on my computer. I backed up the electronic data to two separate flash drives, which remained in a locked file cabinet at my home for a minimum of five years. At the end of the five-year period, destruction of the data was by shredding physical data and erasing the audio and electronic files (Yin, 2014).

Research Method and Design

The main methods of research are quantitative, qualitative, and mixed methods approaches (Yin, 2014). A research design is the logical link connecting the data that a researcher will collect to the research question and the conclusions that the researcher will draw (Yin, 2014). In this study, I used a qualitative method involving semistructured interviews, documentation reviews, and a single-case design.

Research Method

The qualitative method chosen for this research is suitable based on my philosophical perspective, the nature of the research question, the data collection methods, and my role in the research. The researcher's philosophy is an important

consideration when deciding on the method for research (Johnston, 2014). Specifically, the method chosen is often a reflection of the researcher's philosophical perspectives of the construction of knowledge (Johnston, 2014; Merriam, 2009) and choice of research work (Glesne, 2011). Philosophical perspective is an individual's belief in the nature of reality and knowledge (Merriam, 2009). My philosophical perspective is that of a social constructivist or an interpretivist. A social constructivist seeks to create reality inductively from interpretation of a single event (Merriam, 2009). An interpretivist believes that reality exists as social constructions and preferentially works with qualitative data (Glesne, 2011; Wahyuni, 2012). Interpretivist researchers study social reality from the participants' perspective so the experiences and values of the participants and the researchers have a substantial impact on data collection and analysis (Wahyuni, 2012). In performing research, the interpretivist will explore through observation, questions, and interaction with participants; seek out patterns during data analysis; and prepare a descriptive report; all characteristic of the qualitative method (Glesne, 2011). The qualitative method that I chose for the current study aligns with my social constructivist or interpretivist perspective. I sought to construct the reality of the event of ISO 9001 implementation in the case organization via the perspective of social construction.

The flexibility of qualitative data collection and analysis methods permits the researcher to do further data collection and analyses based on the need of the situation that unfolds, thus enabling deep and full exploration of the research problem (Bluhm et al., 2011). Snyder (2012) added support for the strength of qualitative studies as he stated

that the researcher has flexibility of methods chosen to answer the research question effectively. The application of qualitative inquiry in this study permitted the exploration of the varied views of participants from the case organization.

The data collection and analysis features of the qualitative research method are congruent with the methods of data collection and analysis for this qualitative study. The qualitative approach involves obtaining information from multiple sources and performing inductive data analysis to extract the meaning that emerges as themes, and interpreting data (Bluhm et al., 2011; McNulty et al., 2013). Yin (2014) presented six major sources of data: (a) documentation, (b) archival records, (c) interviews, (d) participant observation, and (f) physical artifacts. Documentation may be letters, memoranda, administrative records, news clippings, and other articles. Archival records can consist of computer files, census data, organizational records, and survey data. Interview is one essential source of case study evidence and may be short, prolonged, or survey interview. Direct observations involve observing the subject usually in a real-world or natural setting. The researcher participates in the study events and observes the actions and outcomes in participant observation. Physical artifacts include technological devices, tools, instruments, or works of art or other artifacts collected or observed as part of the study (Yin, 2014).

Data collection from participants in the study was from two sources and by two methods, interviews and documentation reviews. Interviews were the main source of information in the study, which is the main method of data collection in qualitative research (Bluhm et al., 2011; McNulty et al., 2013). Interviews were semistructured

face-to-face, e-mail, or telephone interviews conducted at a time and in a setting agreed to by the participant (Glesne, 2011; McGuire et al., 2013; Rowley, 2012). Marshall and Rossman (2011), McNulty et al. (2013), and Richards (2012) concurred that qualitative inquiry is ideal for the researcher who wants to take a naturalistic approach to the study of the world and to derive interpretation from such a study.

A researcher in qualitative studies performs the key role of data collection and inductive data analysis of the collected data (Bluhm et al., 2011; McNulty et al., 2013). I performed the role of data collector during the current study. In qualitative research, data originates from the perceptions and experiences of participants who may be workers who experienced a phenomenon or an individual with more knowledge than others possess about the phenomenon under investigation (Bluhm et al., 2011). I selected a purposive sample of participants who were more knowledgeable than others about the implementation of ISO 9001 within the organization because they had experienced the process.

Although other methods are available for performing research, such as quantitative and mixed methods, the qualitative method best suited the objective of the study. The study objective was to obtain an in-depth understanding of the strategies used for the phenomenon of successful ISO 9001 implementation in a government organization in Jamaica. Several authors concured that the researcher can obtain an in-depth understanding of a phenomenon under exploration through participants' experiences, perceptions, and beliefs (Bluhm et al., 2011; Sinden et al., 2013). The qualitative method best suited the research framework because qualitative inquiry is more

effective than quantitative inquiry in the exploration of a new phenomenon or the development of new insight (McNulty et al., 2013). Qualitative research provides a richness and depth of knowledge of the phenomena under investigation beyond that of quantitative inquiry (McNulty et al., 2013). The quantitative method would be less effective in obtaining participants' views concerning the strategies used to implement ISO 9001 successfully. Qualitative research permits the exploration of participants' views in the natural setting of their organization (Baur, 2014; Marshall & Rossman, 2011; McNulty et al., 2013). Quantitative methods were not compatible with this research as the intent was to explore a central concept and not to test a link. Quantitative methods involve the use of inferential statistics and are suitable for theory testing and examination of cause and effect (Frels & Onwuegbuzie, 2013; Venkatesh et al., 2013). Another method commonly used by researchers is the mixed method approach in which the researcher combines quantitative and qualitative research techniques in a single study (Frels & Onwuegbuzie, 2013; Glesne, 2011; Zachariadis et al., 2013). The mixed method was not appropriate for this study as I did not use quantitative techniques to collect and analyze data to combine them with the qualitative techniques used in the study.

Research Design

A research design is the logical link connecting the data that the researcher will collect to the research question and the conclusions that the researcher will draw (Yin, 2014). The research design provides a guide for the researcher during the collection, analysis, and interpretation stages of the research (Yin, 2014). The components considered in the selection of the case study design for the study are those that Yin

considered important for a research design: (a) the research question, (b) the purpose of the study, (c) the unit of analysis, (d) the link between the data and the purpose of the study, and (d) the criteria for interpreting the findings.

The question for the research was exploratory and derived from the knowledge gap identified in the review of the literature from previous studies. The study was an exploration of the contemporary event of ISO 9001 implementation in a government organization. Yin (2014) favored the case study approach for the exploration of contemporary rather than historic events and in instances in which the researcher has limited control over behavioral events. A case study has several definitions. Merriam (2009) defined a case study as an in-depth depiction and investigation of a unit of analysis. Yin (2014) defined a case study as an in-depth, empirical examination of a contemporary phenomenon in its natural setting using multiple sources of evidence. The study was an in-depth exploration of the contemporary phenomenon of ISO 9001 implementation in an organization. The study involved the collection of research evidence from interviews with participants and reviews of documentation.

The purpose of the case study research was to explore the contemporary phenomenon of ISO 9001 implementation. The aim was to contribute to expanding the body of knowledge relating to the strategies used to implement ISO 9001 successfully in government organizations in Jamaica. Case study researchers explore, describe, and depict a setting, an individual, or a situation (Wynn & Williams, 2012). Researchers use case study in various situations to add to the body of knowledge about individuals, groups, organizational, social, political, and other related phenomena (Yin, 2014).

The unit of analysis or case typifies a case study (Merriam, 2009). Stake (1978) referred to a case as a bounded system of interest that could be a person, institution, program, responsibility, collection, or population. Yin (2014) noted that the case might be an individual, small group, communities, events, an entity, a specific locale, decisions, programs, and organizational change. In the study, the case was the ISO 9001 implementation program for the organization. I determined the boundary of the case with the assistance of the research question and purpose. In the study, the boundary of the case was limited to the activities associated with the successful implementation of the ISO 9001 program (from the time of the implementation decision to certification of the QMS) in a government organization in Jamaica.

The data analysis method for the study was a thematic analysis using the pattern matching technique as described in the data analysis section of this proposal. To conduct a thematic analysis of data, researchers code and segregate data to search for themes and patterns (Merriam, 2009; Glesne, 2011). Using the chosen data analysis method, I linked the main themes and patterns derived from the study data with the purpose of the study, the current literature, and the conceptual framework for the study. Stake (1978) believed that case study characteristics are more suitable for researchers seeking to expand rather than reduce the sphere of knowledge, and the best use is for adding to existing experience and humanistic understanding. One aim of the study was to add to the information in the literature by drawing upon the knowledge of persons who experienced the implementation of ISO 9001 in the case organization.

The five approaches to qualitative inquiry are narrative, phenomenology, grounded theory, ethnography, and case study (Prowse & Camfield, 2013). A case study design aligned well with the qualitative method for the study as both (a) were useful to explore a phenomenon (Baur, 2014; Merriam, 2009; McNulty et al., 2013; Stake, 1978; Yin, 2014); (b) involved data collection in the natural setting (Bluhm et al., 2011; McNulty et al., 2013; Yin, 2014); (c) involved information gathering from multiple sources (Bluhm et al., 2011; Merriam, 2009; McNulty et al., 2013; Yin, 2014); and (d) used interview as the main method of data collection and data gathering partly by observation (McNulty et al., 2013; Stake, 1978; Yin, 2014).

A researcher can ensure a robust case study through flexibility, willingness to modify the research design progressively, and through continued interaction with participants during data analysis (Snyder, 2012). The qualitative, single-case design of this study allowed flexibility to modify the study as needed to answer the research question. The advantage of using the single-case study design was that the design was economical for resources such as time, money, and effort (Yin, 2014). Mitigation of the disadvantage related to methodological rigor was by obtaining information from multiple sources and performing inductive data analysis to extract the meaning that emerges as themes (Blaum et al., 2011; McNulty et al., 2013). The aim of the single-case design is not to extrapolate the results to a population but to provide theoretical extension or transferability thus addressing concerns related to external validity or transferability (Sampaio, Saraiva, & Monteiro, 2012; Yin, 2014). I provided descriptions of the study

setting and participants, detailed the findings, and incorporated sufficient evidence but left transferability to readers' judgment.

Phenomenology as a research design was unsuitable for the study, as I did not focus on the lived experience of individuals with a view to describing how they experienced and perceived their experiences of the phenomenon under investigation (Glesne, 2011; Marshall & Rossman, 2011). Survey and archival analysis as research designs were inappropriate, as the goal of the research was not to describe the frequency or prevalence of the ISO 9001 QMS implementation in Jamaica or to predict an outcome (Yin, 2014). History as a research design was inappropriate, as I had access to persons who experienced the implementation of ISO 9001. The historic design is suitable when no relevant persons are alive to provide even a retrospective report (Glesne, 2011; Yin, 2014). I did not intend to manipulate the relevant behaviors in the study, so an experimental design was not necessary (Glesne, 2011; Yin, 2014).

The purpose of this qualitative case study was to explore the strategies that managers of a government organization in Jamaica used to implement ISO 9001 successfully. The sample size for qualitative research methods is usually smaller than that for quantitative methods (Dworkin, 2012). The aim of qualitative research is to obtain an in-depth understanding of a phenomenon or to derive meaning for how and why an issue occurs (Dworkin, 2012). Mason (2010) noted that a researcher should base the sample size for qualitative research on the principle of saturation to assure adequacy of perceptions while eliminating repetition and redundancy. Guest, Bunce, and Johnson (2006) posited that they could achieve data saturation within the first six interviews

during their qualitative research. Tirgari (2012) recommended five to 20 interviewees to achieve data saturation. Ando et al. (2014) identified a sample size of 12 for thematic analysis. I planned to interview an initial four participants followed by more if needed until I achieved data saturation.

Population and Sampling

In qualitative case studies, the researcher usually samples at two levels (Merriam, 2009). The researcher performs sample selection at the case level then within the case (Merriam, 2009). Most qualitative studies may include a single unit at the wider level with multiple units at a narrower level (Yin, 2011). A researcher can conduct an in-depth study on one case to answer research questions and meet study objectives (Saunders et al., 2012). The population for the study comprised managers of one ISO 9001 certified government organization in Jamaica who agreed to participate in the study. The single-case study design was appropriate for the qualitative case study. I selected the case organization and the sample within the case (participants and documents for analysis) by nonprobability typical purposive sampling.

Nonprobability sampling is the preferred method for most qualitative research as statistical generalization is not an aim of qualitative research (Merriam, 2009). The goal of a case study is not statistical generalization about the population from the sample (Saunders et al., 2012). Merriam (2009) posited that nonprobability sampling was the resultant choice of sampling methods for qualitative studies based on the question, concerns, and purpose of qualitative studies. Nonprobability sampling suited the

qualitative case study, as the aim was not to transfer the study results from the sample to the population on statistical grounds (Glesne, 2011; Merriam, 2009).

The purposive sampling strategy involves screening and making appropriate selections for a study (Ando, Cousins, & Young, 2014). Merriam (2009) recommended purposive sampling for investigations aimed at discovery, understanding, and insight. Glesne (2011) and Saunders et al. (2012) supported purposeful sampling for an in-depth study. Suri (2011) noted less expense, time, travel, and ease of sample selection as advantages of purposive sampling. I chose purposive sampling to gain in-depth understanding from participants, and because of resource constraints. Kindstrom, Kowalkowski, and Nordin (2012) used purposeful sampling as a means of accessing highly knowledgeable respondents for their study. Purposive sampling was appropriate for this qualitative study, as I sought to discover, understand, and obtain insight from knowledgeable and experienced participants.

I used typical purposive sampling to select the case organization and participants. The choice of sample in typical purposive sampling is the average person, situation, or phenomenon of interest (Merriam, 2009). Typical case sampling usually includes a representative case (Saunders, et al., 2012; Suri, 2011). I identified the case from a list of ISO 9001 certified organizations on the NCBJ's website. Access to the name and contact information for the head of the case organization was from the organization's website. The criterion for case selection was that the organization had an average certified ISO 9001 QMS. The certification is an indication of successful ISO 9001 implementation. The study population comprised managers of an ISO 9001 certified government

organization in Jamaica who met specified criteria and agreed to participate in the study. The criteria for selecting the managers for the study were that the managers needed to be in the specified positions (top management, QMS representative, and other managers) and experienced the implementation of ISO 9001 in the organization. The criteria were to ensure that the participants had the background and experience to support the design and purpose of the research and to answer the questions for the case study (Yin, 2014).

The basis for the number of participants to interview was adequacy to (a) capture a range of perceptions, (b) meet the aim of the study, and (c) achieve data saturation. The number of participants, sites, or activities that the qualitative researcher selects should be sufficient to answer the research question (Merriam, 2009). Adequacy of sampling, according to O'Reilly and Parker (2013), relates to showing that the information collected has depth and breadth and is appropriate to the phenomenon under investigation. Mason (2010) recommended the selection of sample size based on the principle of saturation to assure adequacy while eliminating repetition and redundancy for qualitative interviews. Data saturation is the point where new themes infrequently emerge and where no additional information surfaces (Guest et al., 2006; Houghton, Casey, Shaw, & Murphy, 2013; Onwuegbuzie & Byers, 2014). Guest et al. (2006) posited that they could achieve data saturation within the first six interviews during their qualitative research. Ando et al. (2014) identified a sample size of 12 for thematic analysis. Sample size for qualitative research methods is usually smaller than sample size for quantitative methods (Dworkin, 2012). The minimum sample size for interviews in qualitative single case studies was four (Marshall, Cardon, Poddar, & Fontenot, 2013). I

conducted in-depth interviews with four participants initially. After the first interview, I examined the interview transcript for words and phrases or words that conveyed the same meaning, and did preliminary coding to identify and define themes. I interviewed additional participants and repeated the process of review of transcripts until I achieved data saturation.

The achievement of data saturation is more likely in purposeful data collection (Suri, 2011). In the research, the qualitative method and purposeful data collection permitted control of the scope and size of the study and the achievement of saturation. Triangulation as detailed in the data analysis section of this proposal is a method that I used for ensuring data saturation. I checked information obtained from interviews against the information obtained from document reviews for convergence. With triangulation, I developed converging lines of inquiry so that I could corroborate the data collected. Researchers can construct a better view of the reality through the corroboration of data collected (Merriam, 2009; Shenton, 2004; Yin, 2014).

The agreed interview setting and time was convenient, available, and appropriate for the study participants to assure privacy and proper conduct of the interview (Glesne, 2011; Yin, 2011; Yin, 2014). Interviews were face face-to-face, by e-mail, or by telephone depending on the preference of interviewees (Glesne, 2011; Rowley, 2012). The interview period was approximately one hour (Glesne, 2011; Rowley, 2012; Yin, 2014).

Ethical Research

Important ethical practices such as protecting human subjects are necessary in almost all case studies because they are about contemporary human affairs (Yin, 2014). Protection involves the conduct of case studies to include (a) obtaining informed consent from participants, (b) protecting participants from harm, (c) protecting participants' privacy and confidentiality, (d) protecting especially vulnerable groups, and (e) selecting participants equitably (Yin, 2014). In ensuring that I understood the ethical requirements involved in protecting human subjects, I successfully completed the web-based training course "Protecting Human Research Participants" with the National Institute of Health (NIH) Office of Extramural Research. My certification number is 1046527. I completed the course on November 10, 2012 (see Appendix C).

Using the Letter of Cooperation as shown in Appendix D I obtained approval from the head of the case organization to do the requisite data collection. Following the letter of permission to use the organization for the case study, I submitted the signed Letter of Cooperation to the Walden University Institutional Review Board (IRB) to confirm the community partner's approval for me to conduct the study at the case organization. IRB approval signified incorporation of the requisite level of ethical standards for human subject research before proceeding with the research (Wahyuni, 2012; Yin, 2014).

Each potential participant received an informed consent letter and form by e-mail providing details of the research. Potential participants had the opportunity to review the informed consent letter and ask questions by e-mail or telephone before making a

decision. The letter included the goal of the research, the benefits, the extent of my role in the research, and the part participants played to help to answer the research question. Participants had a choice to either participate or not participate, and the right to withdraw without prejudice from the study at any time. The letter included assurance of the absence of foreseeable risks or harm to human participants, and that the nature and quality of participants' responses was strictly confidential. I also informed participants of Walden University IRB process and the approval received before I could commence data collection.

Interviews did not include the recording of names or personal information. Participants' identities remained confidential through the assignment of numeric codes to maintain confidentiality during coding and analysis (Wahyuni, 2012). The naming of the organization in the study followed a similar format of non-disclosure (Wahyuni, 2012). Audio tape recording of participant interviews took place only if the participant granted permission on the informed consent form (Yin, 2014). I offered no incentives for participation in the study. The head of the case organization and the participants received a two-page summary of the study results. Participants who agreed to engage in the study confirmed voluntary participation by e-mail consent prior to data collection (Glesne, 2011; Yin, 2014).

The consent form included a statement that during and at the end of the research, storage of physical data collected would be in a locked file cabinet at my home for a minimum of five years to protect participants' rights (Wahyuni, 2012). The storage of electronic data was in password-protected files on my computer. I backed up the

electronic data to two separate flash drives, which remained in a locked file cabinet at my home for a minimum of five years. At the end of the five-year period, destruction of the data was by shredding physical data and erasing the audio and electronic files (Yin, 2014).

Data Collection Instruments

My role in the qualitative research was data collection and analysis. The data collection technique that I used was semistructured interviews. The researcher is the instrument for data collection in semistructured interviews (Pezalla, Pettigrew, & Miller-Day, 2012). A qualitative researcher performs the primary roles of data collection and inductive data analysis (Bluhm et al., 2011; McNulty et al., 2013; Merriam, 2009). I was the primary instrument of data collection. In qualitative research, the main instrument for data collection is human (Merriam, 2009). Interview is the main method of data collection in qualitative research and case studies (Bluhm et al., 2011; McNulty et al., 2013; Yin, 2014). Yin (2014) proffered that interviews are essential sources of information for case studies because well-informed interviewees can give insights into human affairs or behavioral events. A semistructured interview is one in which the researcher uses pre-determined questions as a guide to ask questions but may not ask the question in the same words or sequence as noted in the guide (Merriam, 2009).

Through semistructured person-to-person interviews and e-mail interviews, I accessed participants' perspectives and understanding and posed a mixture of more structured and less structured questions (Merriam, 2009). The initial section of the interview had more structured questions so I could obtain specific information from

participants on their basic demographics. The second and longest part of the interview comprised a list of less structured questions or issues for exploration. The format of the section was flexible so that I could respond to the emerging views of the participant. The third and final section comprised follow-up questions that allowed the participant to add relevant information that did not emerge from the interview questions (Merriam, 2009).

The agreed interview setting and time was convenient, available, and appropriate for the study participants (Glesne, 2011; Yin, 2011; Yin, 2014). Interviews were face face-to-face, by e-mail, or by telephone depending on the preference of interviewees (Glesne, 2011; Rowley, 2012). The semistructured interviews with participants occurred over about one hour. I monitored the interview time to stay within the time limit. I used an interview guide (see Section C of Appendix B) to enable me to stay on track during the interview process (Clausen, 2012; Merriam, 2009; Wynn & Williams, 2012). Yin (2014) posited that focused case study interviews might take about one hour. Glesne (2011) and Rowley (2012) opined that an interview time of one hour was generally adequate. Interviewees who assisted more than normal to identify other relevant sources of case study evidence, and suggested other persons for interviews assumed the role of primary informants or local facilitators, and were critical to the success of the case study (Glesne, 2011; Yin, 2014). With each interview, I gained the necessary information to advance understanding on the strategies used in the successful implementation of ISO 9001 in the case organization through the varying perspectives of the interviewees. I also relied on the QMS representative as a primary informant to point to other relevant sources of evidence such as company documentation. I maximized the research time

through assistance from the QMS representative as primary informant. In improving the quality of the interviews, I enhanced reliability and validity of the study. The study involved the following actions recommended by Clausen (2012) to improve the interview quality: (a) beginning with a reminder of the purpose of the interview, (b) not asking a question if a previous response included the answer to the question, (c) continually following-up and clarifying what interviewees meant in answering pertinent questions. I verified interpretation to the answers supplied by participants during the interviews (Clausen, 2012).

Audiotape recordings of interviews and verbatim transcription of the contents of the interviews can increase the accuracy of data collection (Glesne, 2011; Merriam, 2009; Yin, 2014). To maximize the accuracy of interview data and attention given to interviewees, I audiotape recorded interviews with the expressed permission of interviewees and transcribed the contents verbatim. I used a digital tape recorder and made typewritten notes in the event of failure of the recorder. Merriam (2009) and Glesne (2011) recommended digital recorders for interviews as they are inconspicuous and store data in a digital form compatible for download to a computer for ease of storage and transcription. I conducted practice interviews and transcriptions with the digital tape recorder to confirm suitability of the device. Checks of the recorder prior to the start and during each interview ascertained proper functioning of the device (Glesne, 2011). I noted important comments and comments that needed expansion or clarification for follow-up later in the interview (Glesne, 2011; Merriam, 2009; Saunders et al., 2012). For the participant who did not consent for audiotaping of the interview, I made a

template of the interview questions and wrote the participant's response to each question. As soon as possible after each interview, review and transcription of notes verbatim took place (Wahyuni, 2012; Yin, 2014). Member checking involves presenting and discussing research information with participants for them to give feedback on the accuracy of the collected data and the interpretation of the data (Andrasik et al., 2014; Baxter & Jack, 2008; Glesne, 2011; Harper & Cole, 2012; Shenton, 2004). To enhance the reliability and validity of the data collection instruments I engaged in member checking to allow research participants to review my working draft to ensure that I had an accurate representation of their perspectives and interpretation of the study phenomenon.

I facilitated the interviews with an interview guide (see section C of Appendix B) developed around the research questions as a monitor for the collection of data. Merriam (2009) and Yin (2014) recommended the use of open-ended interview questions and an interview guide to facilitate qualitative interviews. The guide enabled me to maintain consistency across participant interviews and to stay on track during the interview process (Clausen, 2012; Wynn & Williams, 2012). I provided participants with the interview questions and guide at least two days before the interviews. Prior provision of participants with the interview questions and the interview guide prepared them to respond during the interview (Clausen, 2012).

Documentation review was the second method for data gathering. I used information from the review as a source of corroboration and augmentation for evidence from interviews. Permission for the review of documents formed part of the Letter of Cooperation (See Appendix D). The tools for the review included internet searches of

the organization's website, organizational records, newsletters, and brochures (Saunders et al., 2012; Yin, 2014). I exercised care in interpreting the usefulness and accuracy of the information and focused on what was pertinent to the case study. I prepared a checklist for the document review to ensure that I reviewed relevant and accurate data that respondents recommended.

Yin (2014) proffered that the case study protocol increases the reliability of case study research significantly. The protocol serves to assist the investigator to keep direct focus on the case study topic and to anticipate problems. The protocol comprises the instrument, the procedures, and the general rules for use of the protocol (Yin, 2014). I compiled a case study protocol (see Appendix B) to assure reliability and consistency of the case. To ensure instrument reliability, I followed the case study protocol and transcribed participants' responses to interview questions (Yin, 2014).

Data Collection Technique

Documentation, archival records, interviews, direct observations, participant-observation, and physical artifacts are the main sources of evidence for case studies (Yin, 2014. Glesne (2011) advised that the data-gathering technique chosen to answer the research question should: (a) yield data needed to advance understanding, (b) provide varying perspectives on the subject, and (c) maximize available time. The use of multiple methods for obtaining data is a common practice in qualitative research (Glesne, 2011). The three dominant techniques used in qualitative inquiry are interview, document collection, and observation (Glesne, 2011; Merriam, 2009; Yin, 2014). Using two of the three dominant techniques, I developed converging lines of inquiry for the purpose of

triangulation and corroboration of the case study information (Baxter & Jack, 2008; Yin, 2014). An interview is a dialogue between the researcher and the study participant to answer the research question (Onwuegbuzie & Byers, 2014). Saunders et al. (2012) recommended making notes of persons interviewed, observations made, documents reviewed, and the study settings. Saunders et al. also advocated making notations of anything that happens during interview that could influence the nature of the data collected. I made ample notes during interviews and document reviews. In collecting data, I applied the four principles of data collection: (a) using multiple sources of evidence, (b) creating a case study database, (c) maintaining a trail of evidence, and (d) carefully using data from electronic sources of evidence (Yin, 2014).

After I received approval from Walden University IRB and the head of the case organization to conduct the study, I obtained contact information for the potential participants. I went through the informed consent process including clarification of questions and concerns, and obtained voluntary agreement from participants for the study. I scheduled semistructured interviews for a convenient date, time, and place agreed with the participants. Interviews were face face-to-face, by e-mail, or by telephone depending on the preference of the interviewee (Glesne, 2011; McGuire et al., 2013; Rowley, 2012). Merriam (2009) and Yin (2014) recommended the use of open-ended interview questions and an interview guide to facilitate qualitative interviews. Prior provision of participants with the interview questions and the interview guide prepared them to respond during the interview (Clausen, 2012). I provided participants with the interview questions and guide at least two days before their interviews. The

guide enabled me to maintain consistency across participant interviews and to stay on track during the interview process (Clausen, 2012; Wynn & Williams, 2012).

The planned interview period was approximately one hour (Glesne, 2011; Rowley, 2012; Yin, 2014). I monitored the interview time to stay within the time limit. At the start of each interview, I reviewed the study participant's right from the informed consent letter and form. Face-to-face interviews involved the following actions recommended by Clausen (2012) to improve the interview quality: (a) begin with a reminder of the purpose of the interview, (b) not ask a question if a previous response included the answer to the question, and (c) continually follow-up and clarify what interviewees meant in answering pertinent questions. I asked each participant the interview questions as listed in Appendix A. To maximize the accuracy of interview data and attention given to interviewees, I audiotape recorded face-to-face interviews with the expressed permission of interviewees from the informed consent given, and transcribed the contents verbatim (Glesne, 2011; Merriam, 2009; Yin, 2014). I practiced using the digital tape recorder and checked the recorder prior to and during the interview, to ensure that the device was functioning. I made typewritten notes and comments that may need expansion or clarification for follow-up later in the interview and noted important gestures, emotions, and expressions of participants.

The interview technique is advantageous when the researcher has an interest in a past event (Glesne, 2011; Merriam, 2009). The ISO 9001 implementation and certification event in an organization is unique. The choice of interviewing as a technique was because I interviewed participants about a past event. An interview is

advantageous if a researcher needs to collect facts or obtain detailed understanding of processes (Rowley, 2012). I sought facts and obtained detailed insights into the strategies used to implement ISO 9001 successfully in the case organization through interviews. Semi-structured interviews provide flexibility for exploration of participants' responses for understanding (Merriam, 2009; Saunders et al., 2012; Wahyuni, 2012). A face-to-face interview is advantageous because of the flexibility and control that the researcher has, to obtain additional information while conducting detailed interviews with participants (Mojtahed, Nunes, Martins, & Peng, 2014).

The interview technique is not devoid of challenges. Clausen (2012) noted that a disadvantage of interviews was the difficulty in describing how researchers conducted the interview in a transparent way. Mitigation of the difficulty involved verbatim transcription of participant responses and member checking to ensure an accurate representation of participants' perspectives (Glesne, 2011; Merriam, 2009; Shenton, 2004). According to Glesne (2011), Merriam (2009), and Yin (2014) verbatim transcription of the contents of interviews can increase the accuracy of data collection. I was cognizant that transcription and data analysis of semistructured interviews would be a time-consuming project (Clausen, 2012; Merriam, 2009; Saunders et al., 2012). Mojtahed et al. (2014) noted that face-to-face interviews could be disadvantageous because of participants' reactions to the researcher's presence. I used an interview guide (see Section C of Appendix B) as a monitor for the collection of data to minimize participants' reactions.

After the head of the case organization granted approval for document access through the Letter of Cooperation, during interviews I asked participants to suggest documents for review. I arranged with the QMS representative to review documents (records, newsletter, and brochures) at a mutually convenient time and place. During review of the documentation, I was cognizant of the specific purpose and audience of the documents and carefully interpreted the usefulness and accuracy of the documentation (Merriam, 2009; Yin, 2014). In so doing, I focused on the information most pertinent to the case study. Following document review, coding and categorization of documents enabled me to analyze the documents and use the documentation to corroborate and augment evidence from interviews (Glesne, 2011; Merriam, 2009; Yin, 2014). The authenticity and accuracy of documents may be difficult to assess, and the documents may not be available in a useful and understandable format (Merriam, 2009). Despite the disadvantages identified, Yin (2014) noted the major importance of documentation as a source of corroboration and augmentation for evidence from other sources in case studies. Document accessibility, free cost, relative short time, and low effort in collecting make them a good source of data (Merriam, 2009). Other advantages of document review include the objective nature of the source and the provision of descriptive information useful for studies (Merriam, 2009).

Data Organization Technique

Baxter and Jack (2008), Merriam (2009), and Yin (2014) recommended a case study database for the organization and documentation of data collected during case study research. The case study database or record is an organized presentation of the study data

in a form that facilitates easy identification of specific data by a researcher (Merriam, 2009). I prepared a case study database that included case study notes, documents, and narratives. The case study notes were a compilation of the results of interviews and document reviews, and were in typewritten, audiotaped, and electronic formats. Storage of the notes was according to the major topics in the case protocol allowing for efficient retrieval at a future time (Yin, 2014). I maintained an annotated bibliography of the Portable Document Format (PDF) and scanned documents collected electronically. I wrote a narrative in an attempt to answer the questions in the case study protocol based on integrating the available evidence (from interviews and document reviews) after I completed data collection, and made a tentative interpretation (Yin, 2014).

Yin (2014) encouraged researchers to maintain a chain of evidence. To maintain a chain of evidence, I ensured that the case study report included the same evidence collected during the data gathering process with none of the original evidence lost or not considered to analyze the case. The single-case study report included adequate citations to the pertinent sections of the case study database that itself included the actual evidence, the circumstances of evidence collection, and was consistent with the particular procedures and questions from the case study protocol. The content of the protocol showed the link to the research question (Yin, 2014).

During and at the end of the research, storage of physical data collected was in a locked file cabinet at my home for a minimum of five years (Wahyuni, 2012). The storage of electronic data was in password-protected files on my computer. I backed up the electronic data to two separate flash drives, which will remain in a locked file cabinet

at my home for a minimum of five years. At the end of the specified retention period, data destruction will take place by shredding physical data, and erasing the audio and electronic files (Yin, 2014).

Data Analysis

Data analysis is the organization of evidence collected from what the researcher saw, heard, and read so that he can decipher what he learned, and understand what he experienced (Glesne, 2011). In short, data analysis is the process of deriving meaning from data (Merriam, 2009; Wahyuni, 2012). Data analysis comprises examination, categorization, tabulation, testing, or other means of recombining evidence to arrive at practical conclusions (Yin, 2014).

Data analysis for this study matched the three concurrent flows of activities recommended for qualitative data analysis by Miles, Huberman, and Saldana (2014). The activities were (a) data condensation, (b) data display, and (c) conclusion drawing and verification. During data condensation, the researcher selects, simplifies, abstracts, or transforms data from interview transcripts, documents, and other empirical sources. Data display includes the organization and assembly of condensed data into a compact form that is readily accessible for making conclusions or doing further analysis (Miles et al., 2014). Conclusion drawing and verification is self-explanatory.

Data Condensation

Data condensation began with the transcription of each interview to a computer file in Microsoft Word. E-mailed interview responses were in Microsoft Word format. I obtained documents for review in PDF format and uploaded the Microsoft Word and

PDF documents into the NVivo software to facilitate analysis of the data. Merriam (2009), Saunders et al. (2012), and Yin (2014) recommended that qualitative data analysis start with the coding of data by identifying pieces of data that are potential evidences to answer research questions. Coding is the assignment of a designation (single or combined words, letters, numbers, phrases, colors) to aspects of data for easy retrieval (Merriam, 2009). Coding of data included assignment of a numeric code to the transcript of each participant interviewed and document reviewed in the study. Coding also included notes, comments, and queries in the transcripts made next to pieces of data that were evidences for answering research questions (Glesne, 2011; Merriam, 2009; Wahyuni, 2012; Yin, 2014).

The next step of data condensation involved classification of codes into meaningful categories and subcategories, and rearrangement of coded data using the classification (Merriam, 2009; Saunders et al., 2012; Glesne, 2011; Yin, 2014). The naming of categories matched the study purpose and aligned with the study questions (Glesne, 2011; Saunders et al., 2012). Researchers advocated an inductive and comparative approach to doing qualitative data analysis (McNulty et al., 2013; Merriam, 2009; Wahyuni, 2012; Yin, 2014). The arrangement of codes into categories and subcategories (themes, patterns, and findings) took an inductive approach. Code comparisons for each set of interview and document reviewed against the named categories and subcategories followed iteratively (Bluhm et al., 2011; Glesne, 2011; Merriam, 2009; Yin, 2014).

I built and identified themes in the data by repeating the process of code identification and categorization iteratively. A revision of codes and categories followed each comparison (Glesne, 2011; Merriam, 2009; Yin, 2014). The point of saturation was when no new information, insight, understanding, or new codes and categories emerged (Guest et al., 2006; Houghton, Casey, Shaw, & Murphy, 2013; Onwuegbuzie & Byers, 2014). Information for the data collection process, the point of data saturation, and to draw conclusions related to the study problem and research question, came from the simultaneous performance of data collection, data analysis, and interpretation (Glesne, 2011; Merriam, 2009; and Saunders et al., 2012). Researchers advocated writing self-memos during analysis for recording ideas about sections of the research as they come to mind (Casteleberry, 2014; Glesne, 2011; Saunders et al, 2012; Yin, 2014). I made self-memos during interview transcription and data categorization to assist in data analysis.

Yin proposed five techniques for analyzing case studies and noted that they were ways to link the study data to the proposition or the purpose of the study (Yin, 2014). The five techniques were: (a) pattern matching, (b) explanation building, (c) time-series analysis, (d) logic models, and (e) cross-case synthesis. Pattern matching involves comparing a predicted pattern with that derived from the study results. In explanation building, the analysis of the case study data occurs through the building of an explanation about the case based on a presumed set of causal links. Time-series analysis involves comparing observed trends with those specified prior to starting the study or with predetermined rival trends. The match between empirically observed and theoretically predicted events is the subject of logic models. Cross-case synthesis involves

comparison of multiple cases to seek for replicate or contrasting patterns (Yin, 2014). I did a thematic analysis using the pattern matching technique. To conduct a thematic analysis of data, researchers code and segregate data to search for themes and patterns (Merriam, 2009; Glesne, 2011). Using the chosen data analysis method, I linked the main themes and patterns derived from the study data with the purpose of the study, the current literature, and the conceptual framework for the study. Stake (1978) believed that case study characteristics were more suitable for researchers seeking to expand rather than reduce the sphere of knowledge, and the best use was for adding to existing experience and humanistic understanding. One aim of the study was to add to the information in the literature by drawing upon the knowledge of persons who experienced the implementation of ISO 9001 in the case organization.

Baxter and Jack (2008), Glesne (2011), and Yin (2014) recommended computer-assisted qualitative data analysis software (CAQDAS) as tools that researchers could use to assist to code and categorize copious volumes of narrative text from open-ended interviews or written materials. Qualitative researchers can use NVivo 10, released in 2012 by QSR International, for sorting, organizing, and classifying data (Casteleberry, 2014). I uploaded the PDF version of documents reviewed, transcripts from interviews, and e-mail responses into NVivo 10 to identify repetitive words and phrases that appeared in the data. Assistance in the identification of emergent themes through derived codes came from NVivo 10, but I made the decisions and interpretations during data analysis (Glesne, 2011; Merriam, 2009; Saunders et al., 2012; Yin, 2014).

NVivo software was suitable for data analysis in my qualitative study for several reasons. First, NVivo 10 supports a wide range of data importation from formats such as Microsoft Word, PDF, rich text, and plain text. Researchers can collect data from varied sources including interviews, documents, and field notes and collect, organize, and analyze the data in NVivo 10 (Casteleberry, 2014). NVivo 10 software supports transcription and analysis of data gathered from qualitative semi-structured interviews (Cadogan, McHugh, Bradley, Browne, & Cahill, 2015; McCullough et al., 2015; Sewali, Pratt, Abdiwahab, Call, & Okuyemi, 2014). Data exportation to Excel and other software is easy in NVivo 10 (Casteleberry, 2014). Second, NVivo facilitates the qualitative research that involves coding of data around themes (Casteleberry, 2014; McCullough et al., 2015). I transcribed data from interviews to computer files in Microsoft Word. I uploaded the transcriptions and the PDF formats of the documents I reviewed, to NVivo 10 to facilitate the generation of themes and patterns. Third, researchers can display findings from data condensation and access pictorial representations of their data using NVivo (Casteleberry, 2014).

Data Display

Data display indicates the overall pattern in the study (Glesne, 2011). Displays facilitate comparisons between elements; identification of relationships, themes, and patterns; conclusion drawing, and action (Miles et al., 2014). Visual displays feature condensed data organized and assembled into matrices and narratives (Glesne, 2011; Merriam, 2009; Miles et al., 2014). Access to displays in the form of pictorial

representations of findings made from data condensation came from NVivo (Casteleberry, 2014).

Conclusion Drawing and Verification

To facilitate conclusion drawing and verification, I analyzed data collected from interviews and document reviews to develop converging lines of inquiry for the purpose of triangulation and corroboration of the case study information. Researchers use interviews and document analysis to triangulate and corroborate emerging findings (Baxter & Jack, 2008; Glesne, 2011; Merriam, 2009; Yin, 2014). Torrance (2001) described triangulation as the process of using different methods to verify patterns in information from a minimum of three different data sources. Glesne (2011) noted that triangulation might occur through multiple data-collection methods, multiple types of data sources, multiple researchers, and multiple theoretical perspectives. Denzin (2009) identified four basic types of triangulation: (a) data triangulation using different sources accessed over time; (b) investigator triangulation using multiple investigators in a study; (c) methodological triangulation using multiple methods such as interviews, questionnaires, observations, and document reviews to collect data; and (d) theoretical triangulation using multiple theories or hypotheses in the interpretation of a phenomenon. Triangulation increases the researcher's ability to interpret the findings of a study (Wahyuni, 2012).

The three dominant techniques used in qualitative inquiry are interviews, document collection, and observation (Glesne, 2011; Merriam, 2009; Yin, 2014). From the three methods, a researcher can develop converging lines of inquiry for the purpose of

triangulation and corroboration of case study information (Baxter & Jack, 2008; Yin, 2014). I used methodological triangulation in the study. The data gathering methods were interviews and document reviews. With triangulation, I developed converging lines of inquiry to corroborate the data collected from interviews and document review.

Reliability and Validity

The trustworthiness of research results relates to the extent to which there is rigor in the conduct of the study (Merriam, 2009). Reliability and validity are fundamental to attain rigor in qualitative research (Morse, Barrett, Mayan, Olson, & Spiers, 2002). Trustworthiness and rigor in qualitative research parallel the traditional terminology of reliability and validity (Merriam, 2009). Regardless of the terminology used, verification mechanisms applied during the research process, as opposed to after completing the process, incrementally contribute to ensuring reliability and validity and by extension the rigor of a qualitative study (Morse et al., 2002). Establishing the quality of research and by extension, trustworthiness, rests on four logic tests: (a) reliability, (b) validity, (c) internal validity, and (d) external validity (Leedy & Ormrod, 2013). Some researchers prefer the substitute terms credibility, transferability, dependability, and confirmability instead of internal validity, external validity, reliability, and objectivity (Baxter & Jack, 2008; Houghton et al., 2013; Merriam, 2009; Shenton, 2004).

Reliability

Dependability (reliability) relates to the repeatability of the research by future investigators (Shenton, 2004) or the consistency of research result with data presented (Merriam, 2009). The aim of reliability within research is the minimization of errors and

biases (Leedy & Ormrod, 2013; Yin, 2014). Triangulation, peer examination, investigator's position, and audit trail are strategies for ensuring dependability (Merriam, 2009). Two ways of strengthening the reliability of case study research are to use a case study protocol and a case study database (Merriam, 2009; Yin, 2014).

To ensure the reliability of the study, I incorporated several measures to facilitate the repeatability of the research by future investigators. I used a case study protocol to assist to keep direct focus on the case study topic and to anticipate problems (Yin, 2014). I (a) designed interview questions to guide data collection; (b) provided rich, thick, detailed descriptions to enable comparison by other researchers; (c) established an audit trail by maintaining records of raw data; and (d) organized and documented the data in a case study database (Baxter & Jack, 2008; Merriam, 2009; Yin, 2014).

The case study database included case study notes, documents, and narratives. The documentation of the process and outcome of data reduction, analysis, and synthesis formed part of the audit trail that I established to ensure the reliability of the study. To enhance consistency of the research results with the data presented, I applied triangulation, used an interview guide, and repeated the data analysis. Triangulation increases the ability to interpret the study's findings through the corroboration of the data collected using multiple methods (Denzin, 2009; Kindstrom et al., 2012; Torrance, 2012; Yin, 2014). An interview guide assists to maintain consistency across participant interviews and stay on track during the interview process (Clausen, 2012; Wynn & Williams, 2012; Yin, 2014). Themes emerge through repeating the process of code

identification and categorization iteratively (Bluhm et al., 2011; Glesne, 2011; Yin, 2014).

To minimize errors and increase the accuracy of the study, I audiotape recorded interviews when I received the participant's permission. I transcribed the audio recording into a Microsoft Word document, and did a comparison of the audio recording to the transcribed interviews. Verbatim transcription of participant responses and member checking will enhance accuracy and transparency of the study and reduction of bias (Glesne, 2011; Merriam, 2009; Shenton, 2004). I also clearly stated my biases in the section about the researcher's role. Clarifying a researcher's bias can cause improvement in the reliability and validity of qualitative research as readers can make an informed judgment and evaluate the study and its results (Glesne, 2011; Merriam, 2009).

Validity

The remaining three trustworthiness criteria: (a) credibility, (b) transferability, and (c) confirmability, relate to the validity of a study (Glesne, 2011). Credibility (internal validity) concerns the degree to which the research findings parallel reality (Merriam, 2009; Wahyuni, 2012). In qualitative studies, verification mechanisms applied during the research process incrementally contribute to ensuring reliability and validity of the study (Morse et al., 2002). In the study, I applied methodological triangulation, member checking, rich-thick description, and clarification of researcher bias during the research process to increase the credibility of the research.

Triangulation, peer-review, clarification of researcher bias, member checking, and rich-thick description are some ways of increasing credibility in research (Glesne, 2011).

Triangulation using multiple data-collection methods can strengthen the validity of research (Bluhm et al., 2011; Glesne, 2011; Kindstrom et al., 2012; Shenton, 2004; Yin, 2013). In the study, I collected data using interviews and document reviews and compared information obtained from both sources of data collection. With triangulation, I developed converging lines of inquiry so that I could corroborate the data collected. Researchers can construct a better view of the reality through the corroboration of data collected (Merriam, 2009; Shenton, 2004; Yin, 2014).

In using multiple sources of evidence, I corroborated facts established by participants and minimized bias, poor recall, or inaccurate articulation from interviewees. One challenge of multiple-source data collection is the need for the investigator to master how to apply the variety of data collection techniques (Yin, 2014). To overcome the multiple-source data collection challenge, I obtained the necessary training through an analysis of the methodological writings of various researchers (Glesne, 2011; Guest et al., 2006; Marshall & Rossman, 2011; Merriam, 2009; Saunders et al., 2012; Stake, 1978; Snyder, 2012; Yin, 2014). I learned the strengths and weaknesses of the particular data collection techniques practiced. Interviewing technique is a critical skill that I already possessed as a certified lead QMS and environmental management system auditor for the NCBJ with over 20 years' experience in QMS auditing.

Another way to ensure credibility is to have research participants review the themes for the data collected to see if their perspectives are represented accurately (Glesne, 2011; Merriam, 2009; Shenton, 2004). I allowed research participants to do member checking of my draft analysis to ensure that I had an accurate representation of

them and their perspectives. The reliability and validity of qualitative research improve with the clarification of researcher bias (Glesne, 2011; Merriam, 2009). I added to the credibility of the study by articulating my biases in the details of the researcher's role in the study, thus facilitating readers' ability to make an informed judgment about the study and to evaluate it. The final way I enhanced the credibility of the study was with thick description through which I provided detailed descriptions of the study phenomenon to express the actuality and its associated context under exploration (Shenton, 2004; Wahyuni, 2012). I described the study setting and participants, detailing the findings, and incorporating sufficient evidence to enable the reader to step into the context of the research (Merriam, 2009).

Transferability concerns the application of the findings of a study to other situations (Merriam, 2011; Shenton, 2004; Wahyuni, 2012), or the generalization of the study's findings beyond the immediate case study (Yin, 2014). I did not seek to generalize the case study findings beyond the immediate case. I provided descriptions of the study setting and participants, detailed the findings, and incorporated sufficient evidence but left transferability to readers' judgment.

Confirmability (objectivity) relates to the emergence of research findings from participants' experiences and ideas and not from the researcher's bias (Glesne, 2011; Shenton, 2004; Wahyuni, 2012). Triangulation, clarification of researcher bias, in-depth methodological description to facilitate repeatability of the study, and showing audit trail are ways to enhance research confirmability (Shenton, 2004; Wahyuni, 2012; Yin, 2014). Confirmability in the study occurred through triangulation and corroboration,

clarification of researcher bias, and the development and maintenance of a chain of evidence (audit trail). The assurance of dependability, credibility, and confirmability in this qualitative study facilitated efficient and effective data saturation through the triangulation of data collected.

Transition and Summary

Section 2 began with the purpose statement for the study, a description of my role as the researcher, and details related to the study participants. The section also includes details of the research method, research design, and population complete with justification for selecting the chosen research method and design, sampling method, and size. Included in the section is a description of the process for assuring ethical research, the data collection instruments and techniques, data organization techniques, and data analysis strategies. The section ends with a discussion of the reliability and validity techniques and strategies for the research.

Section 3 will be an overview of the study followed by a presentation of the research findings. The applications of the study results to professional practice and implications for social change will follow. The section will end with recommendations for further research, reflections that I have on the study, and the summary and conclusions of the study.

Section 3: Application to Professional Practice and Implications for Change

Introduction

The purpose of this qualitative single case study was to explore the strategies that managers used to implement ISO 9001 successfully. The data came from four manager interviews and reviews of company documentation containing information relating to ISO 9001 implementation in a single government organization in Jamaica. From the research findings, I saw strategies that the managers used to gain ISO 9001 certification of their organization's QMS for improved efficiency, increased customer satisfaction, and to enhance business sustainability and growth.

The five emergent themes identified from participant interviews and documentation reviews were (a) management commitment and leadership; (b) ongoing awareness, training, and education; (c) customization of the QMS implementation; (d) continuous assessment and update of the QMS; and (e) staff involvement. All research participants opined that management involvement and leadership was essential for staff acceptance and commitment to the implementation process. The participants also noted that the provision of staff awareness and training, specialized auditor training, and communication of information related to the QMS, were key factors in preparing staff for involvement in ISO 9001 implementation. Participants believed that the successful implementation of the QMS would not have been possible without the involvement of staff in activities such as giving feedback, mapping of processes, and ownership of the QMS. The final factor was the customization of the implementation process through various approaches.

Presentation of the Findings

In the study, I addressed the research question: What strategies did managers of a government organization in Jamaica use to implement ISO 9001 successfully in their organization? I used responses from four participants' interviews and information from reviews of six sets of documents to gain an in-depth understanding of the strategies used to implement a successful QMS in the organization. The interview questions followed the sequence of the PDCA cycle discussed in the conceptual framework. Interview questions 1 and 2 related to the background of the participants. Interview question 3 was about the plan phase. Interview questions 4 and 5 related to the do phase. The responses to interview question 6 related to the check phase. Interview question 7 covered the act phase. I used the responses to interview questions 8, 9 and 10 to obtain further details on the strategies for implementing ISO 9001.

Participants provided detailed responses to 10 questions (Appendix A) either in face-to-face interviews conducted in the privacy and comfort of participants' offices or by e-mail interviews. I used member checking and methodological triangulation of multiple data sources to ensure reliability and validity of the study. Data collection and analysis occurred concurrently and comprised an iterative process of code identification and categorization, and then revision of codes and categories for each set of data collected. I used the NVivo 10 software to assist with the coding and analysis of data collected and identified five themes: (a) management commitment and leadership; (b) ongoing awareness, training, and education; (c) customization of the QMS

implementation; (d) continuous assessment and update of the QMS; and (e) staff involvement.

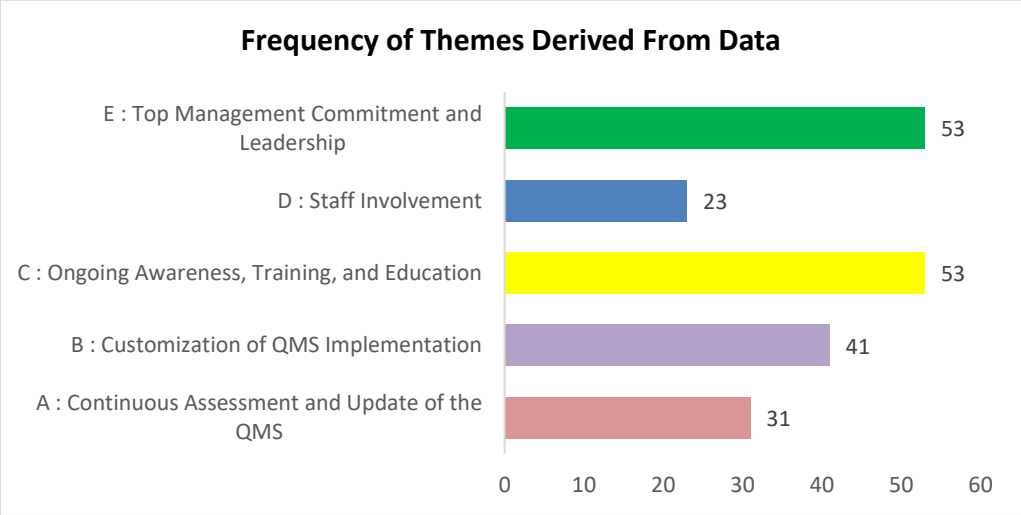

Figure 3. Frequency of themes derived from data

Theme 1: Management Commitment and Leadership

The first theme, management commitment and leadership, comprised two factors: management leadership and involvement, and resource provision. The theme aligns with the results of recent research in which Ingason (2015), and Ismyrlis, Moschidis, and Tsiotras (2015) found that commitment and direct participation of management in ISO 9001 implementation was critical for successful implementation of the QMS. Similarly, in a study of 27 public organizations in Macao, China, the most important antecedent to successful implementation of ISO 9001 was leadership (Yu et al., 2012). Examples of research participants' (coded P01-P04) responses included the following: "We had staff retreat where the focus was on QMS. Here the management got to demonstrate their commitment to the standards" (P01); "management commitment needs to be real and not on paper" (P02); "the commitment of the very senior most members of the management

team was an important strategy in earning certification" (P03); and "our then director general was actually head of the steering committee to ensure buy-in from the top" (P04).

The responses from three of the four participants indicated that the QMS steering committee (QMSSC) was the main driving force during the implementation of the organization's QMS. The chairperson for the QMSSC was a member of executive management and had the role to ensure staff acceptance and commitment to the QMS implementation effort through the work of the QMSSC. The members of the QMSSC had representation at senior management meetings and had overall responsibility for the planning, implementation, review, and update of the QMS including changes to the QMS. Participants reported that management conducted periodic reviews of the QMS to determine its continued suitability, adequacy, and overall effectiveness, and kept QMS issues at the forefront of every management meeting (P01, P02, P03, and P04). Yu et al. (2012) highlighted leadership and customer focus as two factors essential for successful implementation of a QMS, and in particular, ISO 9001. P03 made a similar observation that managers had to maintain customer and stakeholder focus for successful implementation of the QMS. I corroborated participants' responses with the reviews of organizational newsletters and quality publications. Kim et al. (2011), Mellat-Parast (2013), and Mosadeghrad et al., (2013) corroborated the need for management leadership and executive commitment for the successful implementation of quality systems.

All participants spoke about the importance of management commitment to the provision of resources needed for the QMS. The determination of resources needed for the QMS took place at the QMSSC meetings under the guidance of an external consultant

engaged by senior management. The QMSSC representative took resource needs to senior management meetings where discussions occurred, and then the outcome went to executive management for approval. Executive management provided additional human resource through (a) the appointment of a member of management as the QMS representative and project manager for ISO 9001 implementation, (b) the employment of additional auditors dedicated solely to auditing, and (c) the establishment and staffing of the records and information management system(RIMS) unit. Management also engaged an external consultant to guide the implementation, and provided money, tangible, and intangible infrastructure. The theme aligns with García, del Río Rama, and Simonetti's (2016) findings as the researchers recognized the provision of resources by management as critical to the successful implementation of ISO 9001. O'Mahony and Garavan (2012) concurred that long-term commitment of resources by senior management ensured the implementation of the QMS. Conversely, Abdullah et al. (2013) found that lack of human resources was one of the main barriers to successful implementation of ISO 9001.

The TQM system concept encompassing Deming's PDCA cycle, formed the conceptual framework on which I built the study. Management commitment and leadership is consistent with the leadership principle common to the TQM and ISO 9001 practices discussed in the conceptual framework for the study. Kuei and Lu (2013) asserted that managers could establish and improve QMS by following QM principles and practices. TQM and ISO 9001 are two well-known initiatives for performance improvement through QM (Brown, 2013; Yu, To, & Lee, 2012). Deming coined the PDCA cycle comprising sequential steps for continually improving the quality of process

outputs (Kuei & Lu, 2013; Zairi, 2013). The result of the *plan* phase of the cycle is an action plan for quality improvement derived from a situational analysis. Similar to Deming's PDCA cycle, the ISO 9001 standard follows the PDCA model: a process orientation and a continuous improvement system approach (To, Lee, & Yu, 2011). According to the ISO 9001 standard, the result of the *plan* phase is an established set of objectives and processes for achieving customer requirements and the policies of the organization. All participants' responses to interview question 3 indicated that the *plan* phase of the QMS implementation included management's establishment of and involvement in the QMSSC, goal setting, and the determination of objectives. Participants' responses aligned with the results of Ingason (2015) who noted preparation and goal setting as a key factor for a successful ISO 9001 implementation. I show in Table 4 the frequency of occurrence of activities related to the management commitment and leadership theme from my analysis of the organization's documents and participants' responses to interview questions.

Table 4

Theme 1: Management Commitment and Leadership

Data Source	n	% frequency of occurrence
P01	7	13.2
P02	11	20.8
P03	15	28.3
P04	8	28.3
D01	2	3.8
D02	0	0.0
D03	2	3.8
D04	3	0.0
D05	0	5.7
D06	0	9.4

Note. n = frequency of occurrence

P01, P02, and P03 commented on staff sensitization, training, and education sessions as aspects of the *plan* phase. P01 and P04 spoke about the engagement of a consultant and the decision to use a project management approach as part of the planning of the ISO 9001 implementation. Participants P02 and P04 elaborated on additional activities for the *plan* phase such as the determination of needed resources, the processes for the QMS implementation, and the design of the QMS. Simões, Dias, Santos, and Lima (2016) corroborated planning as one of the minimum steps towards implementing a QMS. The researchers recommended outcomes for planning that aligned with the activities that participants reported for the *pla*n phase.

Theme 2: Ongoing Awareness, Training, and Education

Ongoing awareness, training, and education was the second emergent theme. Participants' responses to interview questions 3, 4, 5, 7, 8, 9, and 10 indicated that sensitization and awareness, training, coaching, education, and learning took place during

the PDCA's *plan, do*, and *ac*t phases of the ISO 9001 implementation. The information from the six document sources substantiated the emergent theme. The theme aligns with the prior results of researchers. Simões et al. (2016) opined that the first step towards ISO 9001 implementation should be to understand the ISO 9001 QMS standard. Likewise, Tigani (2012) found that quality awareness affected the successful implementation of a QMS. García et al. (2016) regarded learning as a critical factor to the implementation of a QMS. Kim et al. (2011) identified training as a CSF for ISO 9001 implementation. Conversely, Abdullah et al. (2013) concluded that lack of training and education of employees was one of the main barriers to successful implementation of ISO 9001.

In Table 5, I show the frequency of occurrence of references related to the ongoing awareness, training, and education theme based on my analysis of the organization's documents and participants' responses to interview questions.

Table 5

Theme 2: Ongoing awareness, training, and education

Data Source	n	% frequency of occurrence
P01	9	30.0
P02	3	10.0
P03	8	26.7
P04	10	33.3
D01	4	13.3
D02	2	6.7
D03	3	10.0
D04	4	13.3
D05	2	6.7
D06	8	26.7

Note. n = frequency of occurrence

P01, 02, 03, and 04 commented on specialized training for staff on the requirements of the ISO 9001 standard, the organization's QMS, and internal auditing. All four participants noted the sensitization and awareness training, coaching, or education of staff during the planning and implementation of ISO 9001 in answer to interview questions 3, 4, and 5. P01 stated, "So we trained some persons, mostly functional heads of department, we established a steering committee, again mostly made up of functional heads of departments." P02 said, "Staff were required to attend the different awareness sessions." P03 opined, "On-going sensitization and educational sessions helped to allay some of the fears some staff had." P04 noted, "We implemented what we called sensitization training. Every staff member got two days' worth of training on our quality management system and their role in the quality management system."

In response to interview question 7, P04 said, "We actually ran a sensitization training for all of the staff for two days again so they now understand their role and responsibility." P01 stated, "A combination of coaching, educating and providing necessary information was used to bring persons on board," in response to how to address the challenges encountered during ISO 9001 implementation. P03 spoke about learning through research to overcome a challenge related to the lack of a specific skill set. Participants identified several media for the communication of information to staff: (a) retreats to focus on QMS (P01), (b) use of mnemonics for staff to remember the quality policy (P03), and (c) quality newsletters to communicate information about the QMS and address challenging issues (P01, P03, and P04). Other media were (a) posters to communicate quality policy and objectives (P01, P04), (b) a song called a jingle (P01,

P03, and P04), (c) flyers and notice items (P02), and (d) spontaneous competitions to test familiarity with terms and jargons of the QMS (P01). P03 and P04 recommended learning from others in certified organizations. Like García et al. (2016) and Simões et al. (2016), Chu and Wang (2001) supported education and training as one of the optimum strategies of successful ISO 9001 implementation in the public sector. Chu and Wang urged management to determine education and training needs of employees and to make an early start to education and training because of the time-consuming nature of the activities.

Theme 3: Customization of the QMS Implementation

The third theme related to customization of the QMS implementation to facilitate successful certification of the organization to ISO 9001. The theme aligns with Kim et al.'s (2011) belief that management of organizations might need to customize the ISO 9001 requirements to bring them in alignment with the goals and strategies of the organization. Three of the four participants pointed to a project management approach to the implementation of the QMS as a strategy for success. Ingason (2015) supported the application of a professional project management approach to the implementation of ISO 9001 as a key success factor. P02 and P04 related that management appointed a project manager specifically for the implementation. P01, P02, and P04 detailed some of the implementation tools and activities related to the management of the project such as using a project plan, defining tasks, setting project milestones, and scheduling resources.

All four participants commented on the process management approach to ISO 9001 implementation (*do* phase) in the organization. P01 said, "Upon identifying the

functions, process owners were identified. They were tasked to map their work flow process." P02 noted, "Documentation of processes occurred simultaneously with audits." P03 stated, "Always be prepared to identify your processes, understand them, document them and continually revise." P04 said, "And then as an organization, what we found out from our first audit was that we never had a lot of our processes mapped, so we had to now add what we found." The participants' comments align with research findings by Kim et al. (2011) who supported a process-centered approach to the implementation of the QMS. García et al. (2016) regarded process management as a critical factor to successful ISO 9001 implementation. P02 and P03 noted that the decision for process management was part of the planning phase. Some process management activities that related to the *do* phase were identification of core processes (P01, P02, P03), assignment of owners to processes (P01, P02, P04), mapping and documentation of processes in manuals (P01, P02, P04), and review and approval of processes and documentation (P01, P02, P04). Participants informed that the *act* phase involved process management activities of reviewing and revising processes and documentation (P01 and P03).

P01, 03, and 04 reported that management integrated the ISO 9001 QMS with other management systems so that staff would not see them as separate systems. One example of the integration and centralization of the ISO 9001 QMS with a business management system was the RIMS unit for records and information management. Chu and Wan (2001) noted that policy and management support such as the central handling of tasks of quality programs could help put the quality management system in place. Other customizations took place with mnemonics for the organization's quality policy

(P03) and a song called a jingle to promote the organizations' QMS (P01, P03, and P04). Documentation review substantiated the various methods of customization for the organization's QMS. In Table 6, I show the frequency of occurrence of references related to the customization of the QMS implementation theme based on my analysis of the organization's documents and participants' responses to interview questions

Table 6

Theme 3: Customization of the QMS implementation

Data Source	n	% frequency of occurrence
P01	8	19.5
P02	4	9.8
P03	5	12.2
P04	11	26.8
D01	3	7.3
D02	2	4.9
D03	2	4.9
D04	0	0.0
D05	0	0.0
D06	6	14.6

Note. n = frequency of occurrence

Theme 4: Continuous Assessment and Update of the QMS

The fourth theme was continuous assessment and update of the QMS. The theme aligns with findings from Willar et al. (2015) who noted that successful implementation of ISO 9001 required continuous improvement of the QMS at every level of the organization. All four participants spoke about the iteration of reviews and updates that occurred during the QMS implementation. Interview question 6 related to the *check* aspect of the PDCA cycle that I discussed in the conceptual framework for the study. P01's spoke about reviews of reports on performance against the process at the QMSSC

meetings and management reviews. Management assessed the opportunities for improvement and the need for changes in the system, at management reviews (D01). P02 discussed the gap analysis and comparison of planned with actual implementation timelines as means to check the QMS implementation status. P03's response was that a review and measurement of the organization's goals and objectives constituted the checking of the QMS.

Three of four participants shared that audits were the main assessment tool during the QMS implementation. Kim et al. (2011) named quality audit among the CSFs for ISO 9001 implementation. P02 and P04 recalled that a gap audit was the first audit performed during the QMS implementation. The results of the gap audit provided information on the deficiencies of the organization's QMS versus the requirements of ISO 9001. Management employed additional staff whose dedicated function was to perform internal audits including quality audits of the organization (P02, P03, and P04). A pre-assessment audit and a simulation audit were two other audits for assessing the QMS implementation status (P02 and P04). According to O'Mahony and Garavan (2012), systematic auditing of performance is one way that senior management can ensure the implementation of the QMS.

Interview question 7 related to the *act* phase of the PDCA cycle that I discussed in the conceptual framework for the study. P03 stated "Constant reviews were done. Process owners were asked to address the issues that emerged from audits and assessments." P01, P02, and P04 reiterated the iteration of review and changes of processes and procedures during the QMS implementation in response to question 7. In

Table 7, I show the frequency of occurrence of references related to the continuous assessment and update of the QMS theme based on my analysis of the organization's documents and participants' responses to interview questions.

Table 7

Theme 4: Continuous Assessment and Update of the QMS

Data Source	n	% frequency of occurrence
P01	3	9.7
P02	8	25.8
P03	5	16.1
P04	5	16.1
D01	2	6.5
D02	1	3.2
D03	0	0.0
D04	0	0.0
D05	2	6.5
D06	5	16.1

Note. n = frequency of occurrence

The continuous assessment and update of the QMS theme aligns with the *check* and *act* phases of the PDCA conceptual framework discussion.

Theme 5: Staff Involvement

Staff involvement was the final theme that emerged from the data analysis. All participants noted the importance of engaging staff to perform various activities during the implementation process. Ingason (2015) identified direct participation of employees in the implementation of the QMS as a significant success factor. Chiarini (2016), Kim et al. (2011), and Psomas and Antony (2015) supported employee involvement as one key factor for a successful implementation of ISO 9001. Abdullah et al. (2013) found

that one of the five main barriers encountered during ISO 9001 implementation was lack of involvement, cooperation, and commitment from employees.

P01 and P02 reported the changed composition of the QMSSC from functional heads of department, to include staff members at various levels of the organization who were critical thinkers and change agents. Chu and Wang (2001) supported a steering committee comprising management and employees. P01, P03, and P04 stressed the importance of obtaining the commitment of staff to the implementation of the QMS. P01 said "Initially the steering committee was constituted of functional heads of department. The new constitution was to handpick staff members at various levels of the organization that were critical thinkers, could act as change agents and that could influence change." P03 recommended "Ensure there is buy-in from staff at all levels." P04 said "The critical thing we realize is that if the staff don't think it is their system, it will not be implemented." Willar et al. (2015) noted a similar finding and concluded that successful implementation of ISO 9001 required commitment of internal stakeholders. Staff involvement also encompassed (a) defining, mapping, documenting, updating, and maintaining processes (P01, P02, P03); (b) attendance at awareness, training, and education sessions (P01, P02, P03, P04); (c) participating in audits and assessments (P02, P03, P04); and (d)staff consultation, feedback, and suggestions (P03). Table 3 shows the frequency of occurrence of references related to staff involvement based on analysis of the organization's documents and participants' responses to interview questions.

Table 8

Theme 5: Staff involvement

Data Source	n	% frequency of occurrence
P01	5	21.7
P02	6	26.1
P03	5	21.7
P04	6	26.1
D01	0	0.0
D02	0	0.0
D03	0	0.0
D04	0	0.0
D05	0	0.0
D06	1	4.3

Note. n = frequency of occurrence

Participants' responses to interview questions 3, 4, 5, 7, 8, 9, and 10 indicated that staff involvement occurred during all four phases of the PDCA cycle for ISO 9001 implementation. The staff involvement theme is consistent with the employee management and involvement criteria of TQM, and the involvement of people principle of ISO 9001 discussed in the conceptual framework for my study.

Applications to Professional Practice

The purpose of this qualitative, single-case study was to explore the strategies that managers of a government organization in Jamaica used to implement ISO 9001 successfully. To et al. (2011) and Yu et al. (2012) believed that ISO 9001 implementation would be beneficial to public organizations, as it may result in enhanced organizational performance. Many researchers have documented the benefits of ISO 9001 implementation to organizations irrespective of size and sector (Chiarini, 2016;

Ingason, 2015; Ismyrlis & Moschidis, 2015; Starke et al., 2012; To et al., 2011; and Yu et al. 2012). The main benefits include providing a competitive edge for organizations and economies (Kafetzopoulos et al., 2013; Ismyrlis & Moschidis, 2015; Priede, 2012). In many industries, certification to the ISO 9001 standard is becoming a prerequisite for doing business (Kartha, 2013). I identified five emergent themes from the study that managers of government organizations might use to obtain certification of their organizations' QMS to ISO 9001.

All research participants pointed to management commitment and leadership, and ongoing awareness, training, and education as the leading factors for successful ISO 9001 implementation. Participants' responses aligned with Abdullah et al.'s (2013) conclusion that the two main barriers to ISO 9001 implementation found in previous studies were lack of top management commitment and support and lack of training and education of employees. García et al.'s (2016), Ingason's (2015), Ismyrlis et al.'s (2015), Yu et al.'s (2012) research findings corroborated the results of my study related to the significance of management leadership and involvement, and resource provision for successful to the successful implementation of the ISO 9001 QMS. García et al. (2016), Kim et al. (2011) Simões et al. (2016), and Tigani (2012) added credence to the emergent theme of ongoing awareness, training, and education, through similar findings. The TQM system concept encompassing Deming's PDCA cycle, forms the conceptual framework on which I built the study. The plan phase of the QMS implementation can include management's establishment of and involvement in a QMS steering committee, goal setting, and the determination of objectives for the QMS implementation. As part of the planning phase,

management can (a) determine resources needs, the processes for the QMS implementation, and the design of the QMS, (b) engage a consultant, and (c) decide to use a project management approach to the QMS implementation. Participants' responses indicated that sensitization and awareness, training, coaching, education, and learning took place during the PDCA's *plan*, *do*, and *act* phases of the ISO 9001 implementation.

The majority of the research participants provided information in support of customization of the QMS implementation. García et al. (2016), Ingason (2015), and Kim et al.'s (2011) supported the move to bring the implementation of the ISO 9001 requirements in alignment with the organization's goals and strategies. Some process management activities for the do phase can be identification of core processes, assignment of owners, mapping and documentation of processes in manuals, review, and approval of processes and documentation. Management can integrate the ISO 9001 QMS with other management systems so that staff will not see them as separate systems. Other customizations can take the form of mnemonics for the organization's quality policy, and a song to promote the organizations' QMS. Ongoing training, awareness, and education can form an important part of the do phase.

The continuous assessment and update of the QMS theme aligns with the *check* and *act* phases of the PDCA conceptual framework. All four participants spoke about the iteration of reviews and updates that occurred during the QMS implementation. Chu and Wan (2001), Kim et al. (2011), O'Mahony and Garavan (2012), and Willar et al. (2015) found that successful implementation of ISO 9001 required systematic auditing of the organization's performance and continuous improvement of the QMS at every level of

the organization. The majority of participants in the study shared that audits were the main assessment tool during the QMS implementation. Other activities for the *check* phase can include reviews of performance reports against the process, and review and measurement of the organization's goals and objectives. During the *act* phase, process management activities of reviewing and revising processes and documentation can occur.

Staff involvement was important throughout all four phases of the PDCA cycle for ISO 9001 implementation as confirmed from participants' responses. Abdullah et al. (2013), Chiarini (2016), Ingason (2015), Kim et al. (2011), and Psomas and Antony (2015) supported employee involvement as a key factor for the successful implementation of ISO 9001. Staff can involve themselves in (a) a steering committee; (b) defining, mapping, documenting, updating, and maintaining processes; (b) attendance at awareness, training and education sessions; (c) participating in audits and assessments; and (d) staff consultation, feedback and suggestions.

The results of this study may be of value to business as the results may contribute to expanding the body of knowledge relating to strategies for successful implementation of ISO 9001 in government organizations. Government managers can use the PDCA cycle encompassed in the identified themes and apply the strategies to the implementation of a QMS within their organizations. ISO 9001 certification may result in enhanced organizational performance and provide a competitive edge for the organizations. Additionally, the results may contribute to Walden University's scholar-practitioner model by adding to the body of knowledge for scholars and quality management practitioners.

Implications for Social Change

The results of this study might potentially lead to more ISO 9001 certified organizations in Jamaica if government managers pattern the five themes in a PDCA cycle to achieve ISO 9001 certification of their organization's QMS. Certification might result in improvement in organizational performance and higher customer satisfaction levels because of improved quality of the organization's goods and services (Bevilacqua at al., 2013; Chiarini, 2016; Kafetzopoulos et al., 2013; Willar et al., 2015). ISO 9001 implementation and certification might lead to an increase in competitiveness of the organizations because of improvement in organizational efficiency and effectiveness (Ismyrlis & Moschidis, 2015; Kafetzopoulos et al., 2013; Karim, 2013; Kartha, 2013; Wiengarten et al., 2013). A competitive edge might enhance business survival for ISO 9001 certified organizations, lead to growth in Jamaica's economy, and increased competitiveness of Jamaican organizations in the global market.

The study results might assist communities economically by promoting business survival and the provision of job opportunities. The application of the findings might extend beyond the community and Jamaica's economy to the world. Goedhuys and Sleuwaegen (2013) found that the use of international standards such as ISO 9001 stimulated international trade. The application of ISO 9001 might provide the technical means for establishing and implementing political trade agreements.

Recommendations for Action

Managers of organizations are always seeking strategies for improving organizational performance and satisfying customers so as to maintain business

competitiveness. Yu et al. (2012) concluded that ISO 9001 implementation would be beneficial to public organizations, as it may result in enhanced organizational performance. Ismyrlis and Moschidis (2015) determined that customer satisfaction was one of the top benefits to companies certified to the ISO 9001 standard across all sectors of the economy in Greece. The study findings may benefit current managers of government organization to implement the ISO 9001 QMS successfully to achieve performance improvement and increase customer satisfaction levels. The management of Jamaican organizations may be able to improve the quality of goods and services through the implementation of ISO 9001 as requested by Jamaica's MIIC (Hylton, 2012). Minister Hylton saw ISO 9001 implementation as a means of increasing the international competitiveness of Jamaican export (Hylton, 2012). I plan to conduct seminars for the NCBJ and other government institutions and share the findings of the study. Managers might use the themes to implement successfully the QMS using the PDCA cycle of the TQM framework.

I provided each of the study participants with a 1-page summary of the results and I plan to present the study to a broader audience within the organization. As a QMS trainer, my goal is to use the study themes as a training tool for quality practitioners and managers of government organizations to implement. Further dissemination of the study results should be through business journals and scholarly literature.

Recommendations for Further Research

The focus of this qualitative case study was to explore the strategies that managers of a government organization in Jamaica used to implement ISO 9001

successfully. The population for the study comprised managers of one ISO 9001 certified government organization in Jamaica who agreed to participate in the study. The recommendation for further research is to conduct a multiple case study of government organizations for comparison of responses to the interview questions to see if the findings are similar. The study expansion to increase the number of organizations would add validity to the findings of the study. Another recommendation is to duplicate this study for private sector organizations and compare the implementation strategies for the two sectors. A comparison between the two sectors could reveal different ways for implementing ISO 9001 successfully in an organization. The study participants could include different levels of staff who participated in the organization's ISO 9001 implementation. The responses from various job levels would provide a variety of experiences to determine if the findings would be the same or different.

An organization's ISO 9001 certification is valid for three years. An additional recommendation for future research could be the exploration of strategies for initial certification versus the strategies for recertification of the QMS to determine if the findings would be similar. Alternatively, future researchers could use a mixed method approach that could provide a theory and validate the findings of the current research.

Reflections

When I began the Doctor of Business Administration Program with Walden University, I wanted my research to relate to quality management. During the study process, I gained an understanding of the qualitative method and case study design. The participants were willing to share their perspectives and experiences during the study and

gave invaluable support for the document reviews. The data collection and analysis processes, particularly the iteration for the extraction of themes and the attention to details and alignment matched the degree of rigor that I anticipated.

As a QM professional, I have experience in implementing an ISO 9001 QMS within government organizations. The findings of the study confirmed the experiences. Some participants' perspectives varied on how to address the challenges in the organization during implementation. Participants' recommendations for other managers who want to implement ISO 9001 successfully in their organizations were similar. The findings of my study aligned with previous research findings from the review of the literature.

The aim of this single-case study was to contribute to expanding the body of knowledge relating to the strategies used to implement ISO 9001 successfully in government organizations in Jamaica. I have documented business efforts and practices that are useful to the QM profession. The results of this study provide findings that may improve governmental managers' strategies for the success implementation of the ISO 9001 QMS.

Summary and Study Conclusions

Managers of organizations have increasingly sought certification to various MSS to improve their quality, environmental, and other management practices (Simon & Douglas, 2013). ISO 9001 is the most popular MSS worldwide (Ismyrlis & Moschidis, 2015). ISO 9001 implementation in organizations is beneficial for providing a competitive edge for organizations and economies (Kafetzopoulos et al., 2013; Ismyrlis

& Moschidis, 2015; Priede, 2012). Researchers reported better corporate performance, product quality, and marketing edges; resource efficiency, improved risk management, and improved customer satisfaction from products and services that consistently meet customers' needs because of ISO 9001 implementation (Gamboa & Melao; 2012; Lo et al., 2013; Sannassee & Kawthar, 2013; To et al., 2012). In 2010, Jamaica's MIIC took a policy decision to implement ISO 9001 in the agencies within the Ministry of Industry, Investment, and Commerce as a way to enhance organizational performance, improve Jamaica's business environment and enhance economic competitiveness (Hylton, 2012). In 2012, only 23 Jamaican organizations had ISO 9001 certification (Hylton, 2012). Some managers of government organizations in Jamaica need guidance to implement ISO 9001 successfully in their organization.

The qualitative, single-case study allowed for the in-depth exploration of the strategies that managers of a government organization in Jamaica used to implement ISO 9001 successfully. Four managers participated in the study. I applied methodological triangulation during data collection using semi-structured interviews and reviews of company documentation. Triangulation and member checking allowed me to increase the credibility of the study. Because of the single case study design and time constraints of this study, the findings may not be able to apply to every government organization implementing ISO 9001. I leave transferability to readers' judgment. The analysis of the data led to five themes: (a) management commitment and leadership; (b) ongoing awareness, training, and education; (c) customization of the QMS implementation, (d) continuous assessment and update of the QMS; and (e) staff involvement. Managers

might use the themes to implement successfully the QMS using the PDCA cycle of the TQM framework.

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Appendix A: Case Study Interview Questions

1. How long have you been working in this organization?
2. What role did you play in the implementation of ISO 9001?
3. How was the planning for ISO 9001 implementation in the organization done?
4. What activities and processes did you use to implement ISO 9001?
5. How did you implement the activities and processes for ISO 9001?
6. How did you measure success at implementing the activities and processes for ISO 9001?
7. How did you address areas that needed change or improvement?
8. How did you address challenges, if any, that you encountered during implementation?
9. What recommendations would you give to other managers who want to implement ISO 9001 in their organization?
10. What other information (documents, comments, and recommendations) do you wish to share about your ISO 9001 implementation strategy?

Appendix B: Case Study Protocol

A. Overview of the Case Study

1. **Title**: Strategies to Implement ISO 9001 in a Government Organization in Jamaica

2. **Investigator**: [redacted] Doctor of Business Administration Student – Walden University. Telephone contact: [redacted]; e-mail – [redacted]

3. **Mission and Goals:** ISO 9001 quality management system (QMS) certification is becoming increasingly popular as seen by the significant increase in number of certificates issued between 2003 and 2010 worldwide (Boiral, 2012a). In many industries, certification to the ISO 9001 standard is becoming a prerequisite for doing business (Kartha, 2013) and a means of survival for businesses (Karim, 2013). Although implementation of ISO 9001 is on the rise, it poses a challenge for many business leaders (Abdullah, Razak, Hanafi, & Jaafar, 2013; Holschbach, 2013; Kammoun & Aouni, 2013). Researchers have acknowledged that CSFs for implementing ISO 9001 was a knowledge gap needing further research (Heras-Saizarbitoria & Boiral, 2013a; Sampaio, Saraiva, & Rodrigues, 2009). Bodas Freitas and Iizuka (2012) noted that some of the empirical literature on international management standards (ISO 9000 included) did not address management strategies for complying with the standards.

   To strengthen the case for ISO 9001 implementation, researchers noted that management of private and public sector organizations favors ISO 9001 compliance. Jamaica's Minister of Industry, Investment, and Commerce (MIIC) in the sectoral debate presentation on June 20, 2012, called for the management of local companies to improve the quality of goods and services through the implementation of ISO 9001as a means of increasing the international competitiveness of Jamaican exports (Hylton, 2012). The mission of the study was the exploration of the strategies used by managers of a government organization in Jamaica to implement ISO 9001 successfully. The goals of the study were: (a) to assist managers of government organizations in Jamaica to improve the quality of their organizations' goods and services, and become more competitive in the global market; (b) to improve the Jamaican economy through business improvement; (c) to contribute to Walden University's scholar-practitioner model; and (d) to add to the body of knowledge for scholars and quality management practitioners.

4. **Case study question:** The research question for the study was as follows: What strategies did managers of a government organization in Jamaica use to implement ISO 9001 successfully?

5. **Conceptual framework:** The conceptual framework underpinning this study was the Total Quality Management (TQM) System Concept. TQM is management's approach to uniting all functions and levels within an organization to focus on quality and continuous improvement (Milosan, 2011). The strategic approach to TQM has a focus on the working of the system to guarantee customers' satisfaction and the satisfaction of other interested parties (Giaccio, Canfora, & Del Signore, 2013). The objective of the TQM concept is increased efficiency and effectiveness in customer satisfaction (Milosan, 2011). Both Deming's PDCA cycle and ISO 9001's PDCA model are cyclical with emphasis on continual improvement of processes for delivering customer satisfaction. The TQM system concept encompassing Deming's PDCA cycle, formed the conceptual framework on which I built the study. The interview questions followed the plan, do, check, act sequence of the PDCA cycle. The interview questions assisted to provide answers to the main research question.

6. **Role of Protocol in Guiding the Case Study Researcher:** The protocol was a guidance document created to prompt the researcher's thinking during data collection, to assist the investigator to keep direct focus on the case study topic, and to anticipate problems. The protocol comprised the instrument, the procedures, and the general rules for use of the protocol.

B. Data Collection Procedures

1. **Contact Person**: [redacted]

2. **Data Collection Plan**:

   i. Procedure for Protecting Human Subjects

   Using the Letter of Cooperation as shown in Appendix D I obtained approval from the head of the case organization to do the requisite data collection. Following e-mailed permission to use the organization for the case study, I will submit the signed Letter of Cooperation to the Walden University Institutional Review Board (IRB) to confirm the community partner's approval for you me to conduct the study at the case organization. IRB approval signified incorporation of the requisite level of ethical standards for human subject research before proceeding with the research (Wahyuni, 2012; Yin, 2014).

Each participant received an informed consent letter and form by e-mail providing details of the research. Participants had the opportunity to review the informed consent letter and ask questions by e-mail or telephone before making a decision. The letter included the goal of the research, the proposed benefits, the extent of my role in the research, and the part participants would play to help to answer the research question. Participants' had a choice to either participate or not participate, and the right to withdraw without prejudice from the study at any time. The letter included assurance of the absence of foreseeable risks or harm to human participants, and that the nature and quality of participants' responses would be strictly confidential. I informed potential participants of Walden University IRB process and the approval received before I could commence data collection.

Interviews did not include the recording of names or personal information. Participants' identities remained confidential through the assignment of a numeric code to maintain confidentiality during coding and analysis (Wahyuni, 2012). The naming of the organization in the study followed a similar format of non-disclosure (Wahyuni, 2012). Audio tape recording of participant interviews took place only if the participant grants permission on the informed consent form (Yin, 2014). I offered no incentives for participation in the study. The head of the case organization and the participants received a one-page summary of the study results. Potential participant who agreed to engage in the study confirmed voluntary participation by e-mail consent prior to data collection (Glesne, 2011; Yin, 2014).

The consent form included a statement that during and at the end of the research, storage of physical data collected would be in a locked file cabinet at my home for a minimum of five years to protect participants' rights (Wahyuni, 2012). The storage of electronic data is in password-protected files on my computer. I backed up the electronic data to two separate flash drives, which will remain in a locked file cabinet at my home for a minimum of five years. At the end of the five-year period, destruction of the data will be by shredding physical data and erasing the audio and electronic files (Yin, 2014).

ii. Identification of Likely Sources of Data

I gathered data for the study through interview and company documentation review. To improve the interview quality, I

- began the interview with a reminder of the purpose of the interview;
- did not ask a question if a previous response included the answer to the question;

- continually followed-up and clarified what interviewees meant in answering pertinent questions; and
- verified my interpretation to the answers supplied by participants during the interviews (Clausen, 2012).

I allowed research participants to perform member checking to ensure that I had an accurate representation of their perspectives. The tools I used for document review to obtain pertinent information were internet searches of the organizations' websites, organizational records, newsletters, and brochures (Yin, 2014). I exercised care in interpreting the usefulness and accuracy of the information and focused on what was pertinent to the case study.

I requested informed consent from the head of the case organization to do the requisite data collection. I also relied on the participants including the QMS representative as informants to point to relevant company documentation. With the assistance of the QMS representative, I arranged to obtain access to the relevant documentation.

iii. Expected Preparation Prior to Data Collection

In addition to the procedures for protecting human subjects, participants agreed on a mutually convenient time and place for interviews. Participants received interview questions and the interview guide at least two days prior to the agreed time of the interview as a means of preparing to respond during the interview. I arranged adequate resources including a personal computer, writing instruments, audio recording devices, copying facilities, and a pre-established place conducive for notes preparation. In the event of changes in the scheduled availability of interviewees or other planned activities, I sought to reschedule to a mutually convenient time and place.

C. Data Collection Questions: (Interview Guide)

1. Tenure in the organization
   - Length of time in current position
   - Length of time in other positions if applicable
   - Date when certification or recertification of the organization occurred

2. Role played in the implementation of ISO 9001
   - Team leader
   - Member of implementation team
   - Internal quality auditor

- Management support
- Other - explain

3. Planning for ISO 9001 implementation
   - how objectives and processes for the QMS were established
   - how management obtained commitment or buy-in from managers, supervisors, and staff
   - how management created awareness and training
   - determination of resources needed

4. Activities and processes used to implement ISO 9001
   - significant activities and processes undertaken
   - activities and processes that had the greatest effect

5. Implementation of activities and processes planned for ISO 9001
   - Methods used to implement the activities and processes
   - CSFs for implementation of planned activities and processes

6. Measures for success of implementation activities and processes
   - Accomplishments or milestone achievements
   - effect on organization

7. Actions taken on areas that needed change or improvement
   - areas if any that required changes
   - actions taken when planned activities failed

8. Addressing challenges encountered during implementation
   - specific challenges met, if any
   - means used to overcome challenges
   - activities that assisted organization in moving forward

9. Recommendations to other managers
   - Suggestions and advise for how to succeed when implementing ISO 9001
   - Cautions to other managers

10. Sharing of other information (documents, comments, and recommendations) about ISO 9001 implementation strategy.
    - ask for documents (meeting minutes, reports, newsletters, and presentations) connected with the implementation exercise
    - entertain comments or suggestions on the implementation strategy used to succeed during the ISO 9001 implementation program.

D. Guide for Case Study Report:

1. **Audience for the Report:** CEOs, quality management practitioners, government ministers, and scholars.

2. **Issue or Problem for Exploration:** Strategies used to implement ISO 9001 successfully in a government organization.

3. **Review of Relevant Prior Literature:** Summary of sources used in the literature review as noted in Table 1 and summary of sources of ISO 9001success factors and barriers as noted in Table 2.

4. **Methods of Exploration:** Methods used for exploring the problem as detailed in the research method section of the study.

5. **Data Collected:** Methods used for data collection was as detailed in the data collection section of the study.

6. **Data Analysis and Findings from Exploration:** Data analysis was as detailed in the data analysis section of the study.

7. **Conclusions:** The conclusion was as detailed in the summary and study conclusion section of the study.

8. **Recommendations for Further Research:** The recommendations were as detailed in the recommendations or further research section of the study.

Appendix C: National Institute of Health Certificate of Completion for Protecting Human Research Subjects

Protecting Human Subject Research Participants

http://phrp.nihtraining.com/users/cert.php?c=1046517

Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that **Yvette Castell** successfully completed the NIH Web-based training course "Protecting Human Research Participants".

Date of completion: 11/10/2012

Certification Number: 1046527

Appendix D: Letter of Cooperation from the Research Partner

[redacted]

2016 March 21,

[redacted]

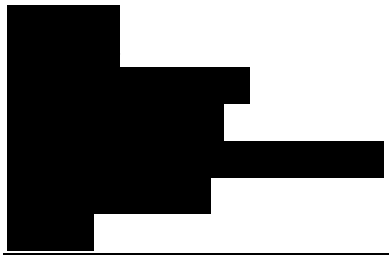
Dear Mrs. Castell,

Based on my review of your research proposal, I give permission for you to conduct the study entitled "Strategy Used to Implement ISO 9001 Successfully in a Government Organization in Jamaica" within the [redacted]. As part of this study, I authorize you to invite potential participants to:

- take part in a 60 minutes interview which you will audio tape if the potential participant grants permission prior to starting. The interview will be face-to-face, e-mail, or by telephone depending on the preference of the interviewee.
- perform a review of and hold discussions with the participants on your interpretation and perspectives (will require about 30 minutes).
- share opinions about your findings and interpretations for assurance of accuracy with the participants (will require about 20 minutes)

The participants will not receive incentives to participate in the study, but will receive a one to two pages summary of the study results. Individuals' participation will be voluntary and at their own discretion.

I understand that you will need to review some relevant company documents such as records (meeting minutes, reports, and power point presentations), newsletters, and brochures in the study. I authorize you to review the relevant company documents with the assistance of our quality management system representative. To ensure confidentiality, you will allow us to review a draft of the proposed study result and will remove any confidential information as per our request.



I understand that our organization's responsibilities include granting permission to use our premises and management personnel for interviews and document reviews. We reserve the right to withdraw from the study at any time if our circumstances change.

I confirm my authorization to approve research in this setting and that this plan complies with the organization's policies.

I understand that the data collected will remain entirely confidential and persons external to the student's supervising faculty/staff may not have access to the data without permission from the Walden University IRB.

Sincerely,