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Distinguishing Leadership of Information Assurance Teams

Bamidele Adetokunbo Bankole
Walden University

Walden University

College of Management and Technology

This is to certify that the doctoral study by

Bamidele A. Bankole

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Dr. Lionel de Souza, Committee Chairperson, Doctor of Business Administration Faculty

Dr. Michael Ewald, Committee Member, Doctor of Business Administration Faculty

Dr. Alen Badal, University Reviewer, Doctor of Business Administration Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
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Abstract

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MBA, University of Phoenix, 2005

BS, Bowie State University, 2003

Doctoral Study Submitted in Partial Fulfillment

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Abstract

Information assurance (IA) projects are essential components of the information technology industry and often fail due to budget overruns, missed deadlines, and lack of performance by the project teams. The purpose of this phenomenological study was to explore the strategies necessary to improve IA project team performance. Lewin's situational leadership theory was used as the conceptual framework for this study. Interviews were conducted with 20 IA professionals located in the Washington, DC Metropolitan area. The data were transcribed, coded, and clustered for the identification of common patterns based on the Moustakas' modified van Kaam analysis. The major themes that emerged from the interview data included the importance of: communication and teamwork, technical knowledge, training, hiring of skilled resources, and balanced project teams. An organization-wide internal training program emerged as an overarching best practice to improve the leadership strategies within the IA sector. The study results may help improve project success and grow the IA industry by creating more jobs.

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Dedication

First and foremost, I, Bamidele Adetokunbo Bankole dedicate this Doctoral Study to me. After 5 years of struggling whether to attain a Doctorate Degree or not; I stand in awe of myself as I have fulfilled one of the biggest academic dreams I have ever had—to have the "Dr" title beside my name the easy way (*easier than attending medical school anyways*). Completing my Doctorate Degree has been a chosen destiny filled with life's ups and downs; Nevertheless, I persevered. I give all thanks and glory to my Lord, my God, my Savior—Jehovah. Without him, I would have never found the grace, persistence and humility to pursue and complete such a prestigious degree. Thank you Jesus! Throughout this process, I learned to stay true to my work, know my worth, and keep diligence at the forefront of my character.

Secondly, I dedicate this Doctoral Study to the mother of all mothers. The source of my existence and inspiration; My mother, Eunice I. Bankole. As a new mother myself, it is my hope that I can be as loving, forceful, relentless, ever-praying, ever-encouraging, strong and compassionate as you are. I can stand here yesterday, today, tomorrow and forever to state without any doubt whatsoever that you are the best mother anybody can ever have and I am grateful that God thought me worthy to be your daughter. Mommy, I love you, I thank you and I appreciate you! *E bami duro fun mama mi……*

Thirdly, I dedicate this Doctoral Study to my younger sisters, Tolulope T. Bankole and Moyosore O. Bankole. I do not know where or how to start thanking them. Whether I was complaining about a professor or emailing them about a perfect score I

received on one of my seminar course work papers. Regardless of what they were doing, they dropped all that they were doing to encourage me and gently nudge me along the way. I can remember a conversation I had with Tolulope stating my frustration halfway through my Doctorate program. I said *"why did I decide to pursue a Doctorate degree? I was relaxing, going to work, going to the gym, hanging out with my friends for the past five years—now what have I gotten myself into*?" Then Tolulope said, *"well sister, remember that day about a year ago, we were sitting in mommy's living room and you said "wouldn't Dr. Bamidele sound so amazing?"* I laughed so hard, but my sense of purpose for this Doctorate was now refreshed.

Last but definitely not the least, I dedicate this Doctoral Study to the purpose of my life, my reason for being, and the apple of my eye; my daughter, Lillian U. O. Bankole-Osadebe. I hope that throughout out your journey of life, I can continue to be an endless source of inspiration.

Acknowledgements

I will like to acknowledge the most patient, consistent and persistent mentor in the world—Dr. Lionel de Souza. He tirelessly guided me in assessing the information assurance industry, took the time to listen to my passion and strategized my research into the outstanding study it is today. Thank you Dr. de Souza for being my superb first chair, confidant, therapist, best friend and scholar!

I will like to acknowledge Joy Spencer, Stephanie Davis, Kandice Smith, and Marie Bakari (*the only four women in my life outside of my family who knew I was pursuing a Doctoral Degree*) for their encouragement of my goals; Four awesome women who are currently making great contribution towards positive social change.

I will like to acknowledge the information assurance industry and its professionals. It is my passion for this industry that gave me the drive to want to be a positive contributor in strengthening our field.

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Section 1: Foundation of the Study

The purpose of the information assurance (IA) industry is to administer security mandates to maintain the confidentially, integrity, and availability of information systems and computer networks as these transmit, process, and store information (Cuthrell, 2010). As an important functional area, Information Technology (IT) security plays a strategic role by providing all departments, and functions across an organization with a private and confidential access to information (Ghezal, 2011). The expectation of IT security professionals, within the information assurance industry, is to put such plans into play.

The criticism of the information technology security industry for hampering business strategy and introducing restrictions to creativity, management, and forward thinking may be well known (McFadzean, Ezingeard, & Birchall, 2011). IT security teams work together to ensure the security of information systems, operations, and assets for the private sector, semi private sector, and government agencies (Hong, 2013). The trend is for the project manager to be responsible for the overall management of an IT security team from inception to delivery (Darrell, Baccarini, & Love, 2010).

Technology continuously evolves; therefore, it may be imperative for leadership, and management practices of the teams who work with such technology to change as well. The purpose of this phenomenological study was to evaluate the effectiveness of the IT security team leadership structures. The data from the research study provided insights into the lived experiences of project managers (PM), and subject matter experts (SME) from various IT consulting organizations within the Washington, DC geographic area. The discoveries from the study provided a deeper understanding and insight into

the role of leadership in navigating and leading IT security teams.

Background of the Problem

The typical structure of an IT security team consists of a project manager, technical lead, subject matter expert, technical writer, senior security analyst, and junior security analyst. The assigned project manager has the overall management responsibility of the project (Denning & Frailey, 2011). The project manager may not have a background in IT security and often manages projects through luck, perseverance, and force of will (Darrell et al., 2010). Miller (2013) concluded that organizations that place project managers to lead technical teams may leave room for the possibility of implementing the wrong solution. The SME assigned to such project ensures that the PM gets an accurate description of business requirements. Some technical projects fail to be completed on time, on budget, or to specifications due to lack of subject matter expertise (Narayanaswamy, Grover, & Henry, 2013).

The common causes of IT failures stem from lack of involvement, setting unrealistic timescales, and adhering to strict management techniques that clash with technological tasks (Susser, 2012). In improving organizational culture, it is imperative that prevailing patterns of activities, interactions, norms, and sentiments including feelings, attitudes, values, and products reflect positive gains (Al-Bourini, Al-Abdallah, & Abou-Moghli, 2013). The lack of balance between information and communication could contribute to why changes often fail to meet established goals (Bateman & Barry, 2012).

Organizations faced with deciding to adapt to technological changes in

management information systems may degenerate in organizational viability (Crespo, 2011). The early-implemented applications of computers were without the aid of information system guides, methodologies, or techniques. The systems development life cycle (SDLC) method as a result lacks the input of project management activities (Luh, Pan, & Chu, 2011). The lack of structured management presence may explain why project managers are at the forefront of leading IT security teams. Darrell et al. (2010) contended that project managers need to optimally leverage an understanding of people, task, and tools in respect of business operations. Though it is almost impossible for a long-term prediction, organizations should be able to foresee a number of scenarios and set simple guidelines (Balmer, 2012).

Problem Statement

Over 70% of information technology projects failed due to cost and schedule overruns, poor estimation, reduced functionality, and cancellation before completion (Cecez-Kemanovic, Kautz, & Abrahall, 2014; Susser, 2012). The misinterpretation of deliverables, implementation of inadequate solutions, and lack of knowledge of the technical project at hand were some examples of the poor requirements analysis (Miller, 2014; Narayanaswamy et al., 2013). Porter, Gogus, and Yu (2011) contended that one of the reasons for the failure of technical teams stemmed from the absence of effective leadership to encourage collaborative processes among team members. The general business problem is that the personnel structure of IT teams may often be flawed, which causes lowered project success (Bardhan, Krishnan, & Lin, 2013; Niederman & Tan, 2011). Williams and Williams (2011) noted that 72% percent of IT project failure was a

result of poor technical, process, and people guidance. The specific business problem is that information technology leaders often have limited strategies to improve information technology project team performance.

Purpose Statement

The purpose of this qualitative, phenomenological study was to explore the strategies that information technology leaders needed to improve information technology project team performance. I conducted interviews with individuals from a sample comprised of 10 subject matter experts, and 10 project managers, drawn from a population of 30 IT consulting organizations within the Washington, DC Metropolitan geographic area. The sample size for this study was 20 information assurance professionals who work within the IT security industry. The favored sample size for a qualitative, phenomenological-based study is in the range of five to twenty-five participants, who experienced the common lived phenomenon (Alford, 2011; Hynes, 2012; Tirgari, 2012). In the qualitative phenomenological approach, one-on-one individual interviews are a valuable source of data.

Failed IT projects can have a devastating effect on personal lives of the professionals who form an IT project team including loss of job, the prospect of unemployment, and an uncertain future. Successful projects may lead to long-term IT projects, contribute to organizational success, and increased job security (Lockett, Currie, Finn, Martin, & Waring, 2014). The outcome of this study may have an impact on achieving positive social change as the discoveries, and knowledge generated could be of value in the management of IT projects, play a role in contributing to increasing project

success, lead to increased job security, and result in satisfied employees within the IA industry (Drnevich & Cronson, 2013; Fisher, 2014; Miladinovic, 2014).

Nature of the Study

In evaluating research methods, qualitative research seemed optimal for this study because the process is flexible, and evolves contextually in response to the lived realities encountered in a field setting (Nourkova, 2011). A phenomenological research design allows the researcher to gain an understanding of the lived experiences of a group of individuals (Alford, 2011). The qualitative, phenomenological study approach was conducive to accumulating a better understanding of the industry phenomenon, and may be viewed as an interpretive process in which the researcher makes an interpretation while maintaining a strong relation to the subject of inquiry (Alford, 2011; Moustakas, 1994; Tirgari, 2012).

Phenomenology was also a technique to gain further understanding into the information assurance industry in assessing leadership practices (Tirgari, 2012). The success of IT projects is critical for organizational growth, but the success rate is historically low with failures costing billions of dollars annually (Tank & Zimmerman, 2013). The goal of the phenomenological approach was to rely on participants' views of the situation studied within the discussions and interactions with the participants (Yu, 2010). The phenomenological design and the qualitative research method are conducive to exploring attitudes, behavior, and experiences through one-on-one interviews. Using qualitative research, the researcher may gain in depth opinions from participants (Camfield & Palmer-Jones, 2013).

Phenomenology is an approach in which the researcher maintains a strong relation with the topic of inquiry (Davis, 2011). The strength of qualitative research is that the method may facilitate the understanding and interpretation of how a person views the situation within their environment (Alford, 2011). Quantitative research is the approach of assessing numeric data of trends, attitudes, or opinions that include cross sectional and longitudinal studies using surveys or questionnaires for data collection (Vaitkevicius & Kazokiene, 2013). The mixed method research is a design that combines both qualitative and quantitative viewpoints into one research study (Zachariadis, Scott, & Barrett, 2013). Considering the three research approaches, the qualitative research method chosen for the study was appropriate for probing, and recording the lived experiences of information assurance professionals within the IT security industry. Prowse and Camfield (2013) documented that the five approaches to qualitative inquiry included narrative, phenomenology, grounded theory, ethnography, and case study.

An optimal research approach and strategy involves methods in acquiring answers to questions, synthesizing findings, and bringing concepts together (Gholami, 2012). Within the IT security team structure, there are seven different job positions that form a cohesive working unit. Conducting the interview sessions with PMs and SMEs served to elicit the lived experiences of IA professionals that work within the IT security field.

Qualitative researchers tend to collect data in the field and at the site where people experience the issue or problem under study. The data collection process involves talking to people directly and seeing them behave and act within their normal environment, going to their homes or places of work, and allowing them to tell the stories unencumbered by

present literature (Hynes, 2012). The aim of the study included focusing on striving to obtain meaningful, deep, and worthy perceptions of how project managers and subject matter experts view the leadership strategy within the IA industry (Sinden et al., 2013). Qualitative research can be utilized to provide insight into the complex, detailed understanding of an issue (Moustakas, 1994). The advantages and disadvantages of the leadership style solicited from the worldview of project managers and subject matter experts within the information assurance industry may add to knowledge in this area.

Research Question

The central research question for the study was: What strategies do information technology leaders need in order to improve information technology project team performance?

The interview questions were:

1. Taking into consideration your experiences in your present/post positions, please identify and explain which components contributes to the success of IT project teams?
2. Considering your experiences to date, what is your observation of the leadership strategies of IT project team performance?
3. What aspects of the leadership strategies within the information assurance industry do you feel are effective?
4. Please identify and explain which component(s) of the IT project team performance structure are successful?
5. Taking into consideration your experiences in your present/post positions,

please identify and explain which component(s) of the IT project team performance structure may be improved?

6. In your opinion and based on your experience, what are the barriers or enablers to improving the IT project team performance and why?
7. Please share how you believe project managers have contributed or failed to contribute to the achievement of IT project teams?
8. Please share how you believe subject matter experts have contributed or failed to contribute to the achievement of IT project teams?
9. How do you perceive the role of project managers in leading IT project teams?
10. What do you believe should be the role of subject matter experts in leading IT project teams and why?
11. What additional information would you like to discuss that we have not covered during this interview?

Conceptual Framework

Leadership theories specify appropriate personality reactions to others, assist in organizing perceptions, and permit predictions, which effects leadership behavior and results (Parris & Peachey, 2013). The conceptual framework that underpinned this study was the situational leadership theory. The situational leadership theory advocates for leader adaptability and flexibility to the team, and proposes that in a situation where the leader is the most knowledgeable and experienced member of a group, the authoritarian

style might be the most appropriate (Lewin, Lippit, & White, 1939). If group members are the skilled experts, a democratic style may be more effective (Ramkissoon, 2013).

Lewin, Lippit, and White (1939) recognized three situational leadership styles; authoritarian, democratic, and delegation. Of the three styles, Bhatti, Maitlo, Shaikh, Hashmi, and Shaikh (2012) contended that the democratic leadership approach was the most effective style when applied to the professional environment. As global businesses continually evolve, the concept of business strategy should grow to align IA team processes to fit the management model. Keeping abreast of industry standards could ensure the longevity of IT security consulting organizations.

Within the information assurance industry, decision making entails evaluating the field to ensure continued effectiveness. The role of leaders is to advance the fortunes of organizations in a globalized environment by proactively and addressing challenges (Voegtlin, Patzer, & Scherer, 2011). Adopting a strategy to ensure effective leadership within the information technology economy is logical, and critical for organizational survival (Ghezal, 2011).

Executives in the information assurance field should take the steps to align management practices to suit business goals (McFadzean et al., 2011). Balmer (2012) contended that it is the duty of leaders to monitor the performance of tasks in terms of goal achievement and ensure the motivation of a cohesive team to perform such tasks. The situational leadership theory is relevant to this study because the leadership qualities of IT security teams needed assessment. Though Lewin et al. (1939) discovered that the three leadership styles are authoritarian, democratic, and delegation; the IA industry

leadership standards may be utilizing one of the leadership styles differently than intended.

Operational Definitions

These definitions of terms may assist the reader in navigating the technical jargon used in the everyday language within the information technology security industry and by IA professionals. In this section, defining some of the common terms used in this study may serve to increase clarity for the reader.

Certification and accreditation (C&A): C&A may be defined as a task performed by information assurance professionals that ensures the safety of information systems through the development, documentation, and implementation of an organization wide information security program that supports the operations and assets of the organization (Hong, 2013). C&A is a process used to evaluate the effectiveness of the computing systems against policies, procedures, and practices of organizations.

Information assurance (IA): IA refers to an industry practice that monitors and remediates the threats concerning the confidentiality, integrity, and availability of the information systems that houses data (McFadzean et al., 2011). The reader may note the use of IA interchangeably with IT security.

Information technology (IT) security: IT security is an industry that utilizes effective and efficient ways to protect information systems, networks, and sensitive data within an organization's infrastructure via advance technology, equipment, and trained professionals (Zhao, Xue, & Whinston, 2013). The reader may also note the use of IT security interchangeably with information assurance (IA).

Project manager (PM): The description of the PM includes a professional responsible for developing a schedule (including constraints, dependencies on other activities, and relationships of tasks within the project), estimating the cost to complete the project, and then work with the team to complete the project on time and on budget (Hernandez, Aderton, & Eidem, 2011).

Subject matter expert (SME): The SME designation reflects a professional who has in depth technical knowledge, procedural knowledge, and skills in the specific aspects of information assurance methodology (Strang, 2011).

Assumptions, Limitations, and Delimitations

The assumptions and limitations are possible weaknesses in a study that are out of the researcher's control (Rufin & Media, 2011). The delimitations describe the boundaries of a study that are controlled by the researcher (Guni, 2012). Included in this section are the specific assumptions, limitations, and delimitations that apply to this study.

Assumptions

The first assumption I made was that project managers, and subject matter experts, who had over seven years of experience working within the information assurance industry, would have ample professional experiences to provide meaningful contribution to this study. The assumption included the premise that in seven years, it is likely the participants would have worked with more than two organizations, been on more than two government contracts, and exposed to different government agencies. The second assumption was that the sample population of 30 IT consulting organizations

located within the Washington, DC Metropolitan area would openly share their experiences as upper management within the information assurance field. My final assumption is that during the interview sessions, the project managers, and subject matter experts would be truthful in relaying their lived experiences. Participants lived experiences may include positive and negative aspects of the leadership structure of the IT security team.

Limitations

The study, with specific screening and eligibility criteria in place, included only project managers and subject matter experts who had over seven years of work experience within the information assurance industry. The population of 30 information technology consulting firms that perform IT security based projects, and contracts for the government agencies served as the study boundary. The aim of the research was to produce information that can be shared and applied beyond the study setting. The Washington, DC metropolitan area within the States of District of Columbia, Maryland, and Virginia located in the United States represented the geographic boundaries of the study. There could be scope for further study as the results may not be valid across other geographies, or be transferable to the entire global population.

Delimitations

In this study, I gained deep meaningful insight from in depth interviews of project managers and subject matter experts working exclusively within the IA field. A delimitation of this study is the inclusion of participants only from the demographics of District of Columbia, Maryland, and Virginia. The second delimitation was for

participants to meet the following eligibility criteria: (a) a minimum of 7 years of experience in the IT industry, (b) located within the Washington DC metropolitan area, (c) served in a management role for a minimum of 3 years, (d) worked for more than two IT consulting organizations within the Washington, DC metropolitan area, (e) worked on a minimum of three contracts/teams, and (f) managed a team of over seven people. The third delimitation of this study included eleven questions asked of 20 IA professionals consisting of 10 subject matter experts, and 10 project managers. The final delimitation of this study was that participants who do not work for IT consulting organizations within the Washington, DC metropolitan were not eligible.

Significance of the Study

This study may be of significance to subject matter experts, and project managers within the IA industry because the findings may contribute to the original body of knowledge on project success, and show a better way to organizing the IT security team structure. The IT security industry must continuously evolve so that sustainability is achievable (Harmon & Moolenkamp, 2012). The importance and possible outcome of sustaining the IT security industry may include the longevity of government contracts, high employee morale, and customer satisfaction. Perhaps evaluating the leadership trend will be the first step in achieving such a goal. The details in this section include a description of reduction of gaps within the IA industry, and the implications for social change from the outcomes and contributions of the study.

Reduction of Gaps

McFadzean et al. (2011) discovered that an alignment between information

assurance techniques and corporate strategies is important. The information assurance tasks viewed as an autonomous entity represent a part of an enterprise wide framework that includes organizational strategies (McFadzean et al., 2011). Edwards (2011) suggested that the IA framework lacked emphasis on people involvement which is necessary for information technology security based projects to be successful in a continuously changing environment. Gordon, Loeb, and Zhou (2011) emphasized the importance of the motivation of information technology security teams by leaders, to achieve overall industry wide objectives and goals.

Quigley (2013) contended that effective leadership is reliable on learnable and definable behavior. Kamisan and King (2013) noted that leaders are confident and intelligent, while Freeman and Auster (2011) suggested that effective leadership characteristics apply a specific style of leadership to accommodate a specific situation. Though Quigley, Kamisan and King, and Freeman and Auster focused on leadership styles, the paucity of views on the specific issues potentially causing failures of projects within the information assurance industry are noteworthy. The discoveries from this study could possibly bridge this knowledge deficit. The purpose of this phenomenological study was to gain deeper insight and possibly discover if there are specific strategies that IT leaders could use to enhance the effectiveness of the information technology team performance.

Implications for Social Change

The phenomenological methodology was useful in exploring the perceptions of the leadership structure within the information technology security teams, and in

collecting data for this study. Chua, Lim, Soh, and Sia (2012) discovered that the best way to guarantee the success of IT security-based projects is to have an experienced project manager, and an equally stronger subject matter expert. Both positional roles understand the eventual goal of the project, and the need to effectively and efficiently meet the project objectives.

The knowledge from the study may be of value to identify the leadership and management factors for project success, which in turn could add to the success of an organization. The success of an organization can offer more employment security to IT professionals. This study can contribute to social change because the discoveries from the study may enhance project success, and consequently improve employment stability. The results of this study could lead to the formulation of various strategies that can contribute to the continued growth of the information assurance industry, thereby positively contributing to social change.

A Review of the Professional and Academic Literature

The key advantage of developing the information technology industry including, information assurance, and management, is to build alignment between them (McFadzean et al., 2011). The positive effect on performance from the alignment between a business strategy, and information technology security strategies has the support of different views, and could be found in relevant literature (Ghezal, 2011; Iivonen, 2013). The purpose of this phenomenological study was to explore the critical factors that IT leaders need to improve IA team performance. In this section, I included details of the search strategies, and literature review grouped under pertinent themes that applies to this study.

Literature Search Strategy

The majority of the peer reviewed academic journal articles that I referenced in this literature review reflect the extensive availability of academic journals in the Walden University Library. The repository of databases that I researched included Academic Search Complete/Premier, Business Source Complete Premier, Computers and Applied Sciences Complete, Dissertations and Theses, e-books on EBSCOhost and, International Security, and Counter Terrorism Reference Center. The key word search included: *information assurance, information technology security, certification and accreditation, information technology, history of information assurance, information technology and sustainability, project manager, data saturation, subject matter expert, technical teams, leading technical teams, IT project failure, IT project success, qualitative, qualitative based research, data collection methods, reliability and validity, phenomenological, phenomenology, purposeful sampling, computer security, leadership theory, information technology governance, security in organizations,* and *management theory.* The content searches yielded over 370,000 peer-reviewed journal articles that were specific to this study merited inclusion.

The other sources of references that I included specific course books provided by Walden University, Google Scholar, websites, peer reviewed industry specific professional publications, and books checked out from various physical libraries also contributed to the research. The total number of peer-reviewed sources that I included in the literature review was 137, which included 134 congruent relevant sources published between the years of 2011 – 2015. The older, relevant sources that I used, may show that

the topic researched was an issue recognized and prevalent in the past.

For the purpose of the study, I grouped the literature review into 15 major themes include: (a) history of the information technology security industry, (b) the importance of a strategic IT governance model, (c) leading technical teams, (d) project management spectrum, (e) subject matter expert spectrum, (f) sustainability and information technology, (g) leadership in practice, (h) conflicts between technology and the management, (i) success factors of IT projects, (j) failure factors of IT projects, (k) leadership theories, (l) literature related to research design and methodology, (m) other phenomenological based studies, and (n) potential themes explored. The grouping of the topics under appropriate themes provide a better view of the IT field, and commenced with the historical context of the IT security industry, its progression, and evolution through a discussion on various business strategies over time, and the critical analysis of potential themes that was evident at the conclusion of the study. The literature topics chosen were also essential in further decrypting the purpose statement.

History of the Information Technology Security Industry

The importance placed on current, 2015 practices in IT security stem from the 9/11/2001 attacks versus the impact in the pre-9/11 period (Gordon, Loeb, & Zhou, 2011). The issue of safeguarding sensitive information is more critical in the privacy driven society (Iivonen, 2013; Roesnre, Tadayoshi, & Molnar, 2014). As a critical functional area, information technology security played a strategic role by providing all organizational entities with a safe, reliable, and efficient access to information (Ghezal, 2011; Haig, 2013). The implementation of security measures must begin prior to the

design stage, continue throughout the monitoring phase, thereby preventing the leakage of sensitive information, insuring that only authorized network traffic are attainable for all organizational systems (Hong, 2013; Steinbart, Raschke, Gal, & Dilla, 2013). Steinbart et al. (2013) opined that the information assurance professionals strived to align the actions of the end users with the desired security posture of management, and of the firm through persuasive communication. This included educating end users with recommendations to enact specific individual computer security awareness towards the prevention of threats through consistent organizational communication (Coward, 2014).

Information security designs serve to protect access to, prevent attack from, and ensure operations against malicious intent over mission, system, and business operational requirements (Steinbart et al., 2013). The organizational systems thereby changed from a mission driven information system to a secure mission driven operational system (Hackney, 2011; McFadzean et al., 2011). Although organizations have tried to avoid any breach of information security by utilizing various technology mechanisms, the leadership has not been able to make information 100% secure. The management of risk associated with potential breaches proved to be an integral part of resource allocation decisions by information security professionals (Roesnre et al., 2014).

McShane, Nair, and Rustambekov (2011) defined risk management as the active process of controlling liability with the objective of reducing the negative impact on the organization that could result from the loss of or harm to valuable assets. Organizations have protected themselves from the loss associated with the destruction of valuable assets by applying the IT security assessment models. In achieving this goal, organizations

have relied on the skills and expertise of practitioners from within the information assurance sector to do so (Cuthrell, 2010).

Though the IA industry started as a result of the 9/11/2001 attacks (Gordon et al., 2011), it is apparent that there is a need for IA since almost 15 years later, organizations are still creating ways to improve IT governance, and update the processes, and procedures that may contribute to the long term goals of the industry, and its professionals (Vintila & Gherghina, 2012). To achieve a continuous improvement process, the appropriate steps, and measures should be undertaken by the IA industry leadership, because meeting the long-term goals of the information assurance industry is critical. There is an increasing complexity in security management that necessitates better planning, and stems from the customized infrastructure, and the growing set of deliverable guidelines to the customer (Haig, 2013). The professionals who work in the IT security industry may be both: the greatest source of weakness, and strength in an organization (Cuthrell, 2010). As such, placing importance on streamlining business processes, as well as the structure in which the teams work, is crucial (Kim, 2010).

The Importance of a Strategic IT Governance Model

The importance of IT governance lies in knowing who makes the business decisions, how the business makes decisions, and for such decisions, who are the responsible individuals (Ghezal, 2011). Some organizations have stored voluminous amounts of highly confidential and proprietary data that include social security numbers, addresses, medical records, work history, and homeowner information. There is an ethical obligation to protect such data from unauthorized access (Chernobai, Jorion, &

Yu, 2011; Goel, Dwivedi, & Sherry 2012). Security incidents resulting from human subversive actions have caused financial losses, reduced business productivity or efficiency, and threatened national security (Edwards, 2011). An effective maturing IT security governance plan should include a sound security planning methodology that entails the schematic of projects from creation to execution (Kim, 2010; Vintila & Gherghina, 2012; Yeh & Chang, 2011). The protection of data, contingency planning, various system security plans, and security awareness should receive configuration management approval that provides oversight of the risks (Martin, Bulkan, & Klempt, 2011). Ghezal (2011) suggested that the lack of information assurance alignment affects business performance and hence needs the aligning of information assurance strategy to business strategy to become a strategic imperative.

IT governance is about assuring that the utilization and maintenance of the organization's resources can create value while adequately carrying out the appropriate tasks (Kim, 2010; Othman & Rahman, 2014). Some organizations have developed superior firm wide IT capability to successfully manage the IT resources so as to not impede on IT infrastructure capability, IT business spanning capability, and IT proactive stance (Lu & Ramamurthy, 2011). The information system security framework lacked emphasis on human involvement as a cause for security problems in a rapidly changing information technology industry (Coward, 2014; Edwards, 2011). Companies made it a priority to ensure that workers have sufficient sense of control over the information technology tasks that leadership enforced (Elit-Dit-Cosaque, Pallud, & Kalika, 2011).

Government reports including, CSI Computer Crime and Security, National

Institute of Standards and Technology, and Department of Defense Information Assurance documented that the information assurance industry lacked a standard management practice, which posed a threat to organizational IT databases, and infrastructures (Foltz & Renwick, 2011; Lozowski, 2014). Whitman and Mattord (2012) noted that the inadequate management of information security tasks will make organizations lose commissions or customers. The alignment of information technology and industry strategy is a perennial challenge for corporate executives; and the lack of aligned processes felt further downstream in the form of bottlenecks, and a diminution in the business value of IT could be seen in the future (Tallon, 2011).

According to Yeh et al. (2011), the leadership within the IT security industry considers information technology to be too complex, and technical to govern. The purpose of a strategic IT governance model is to set rules and regulations in place for IT organizations, and the corresponding employees to remain accountable; unfortunately, the implementation of a solid IT governance model remains a challenge (Vintila & Gherghina, 2012). To ensure that IT security efforts are on track, and deliver the correct value, three points should be addressed by IA management to include: (a) notably making sure that IT tasks fits with the company, and customer strategy, (b) ensuring that the tasks are meeting customer standards, and (c) taking steps to reassure that the staff are knowledgeable enough to complete the tasks, and manage the risks effectively (Lu & Ramamurthy, 2011; McShane, Nair, & Rustambekov, 2011). The executive leadership needs to participate in key IT decisions because involvement may help leaders realize the outcome of each business strategy (Ayyagari, Grover, & Purvis, 2011; Hall, Banchor, &

Matos, 2014). Martin, Bulkan, and Klempt (2011) contended that governance is effective when information assurance initiatives align with organizational, and customer priorities, while performance with the invocation of best practices of the IA industry is measurable.

Leading Technical Teams

In the late 1990s, IA managers, and directors realized that the computing field had matured to the point where members were becoming interested in team support for professional activities (Denning & Frailey, 2011; Seo, Boonstra, & Offenbeek, 2011). The growth experienced within the information assurance industry reflects the number of products, and services offered, and the adoption of these technologies (Chaudhuri, Dayal, & Narasayya, 2011). The focus of IT security has shifted from the physical security of computer systems to securing networks, and business information models (Sohem, 2013). This new mode of communication appears indicative that the security team dynamic was inadequate to meet the threats, and challenges inherent in the new technology infrastructure (Tallon & Pinsonneault, 2011). Leading technical teams often require leaders to challenge team members, give them the chance to solve problems independently, and contribute ideas, not otherwise developed, by the leaders of the technical teams (Litwin, 2011).

In examining several information technology professionals, including firewall administrators, security architects, security compliance analysts, and IT audit professionals, Hui, Hui, and Yue (2012) researched if the technologies assigned were performing the security tasks intended, and evaluated the survivability of the infrastructure network, and team assurance after an attack on the infrastructure. Voegtlin,

Patzer, and Scherer (2011) proposed a new model of responsible leadership that detailed how an understanding of leadership can address the challenges of technical team composition. Han, Chang, and Hahn (2011) argued that two characteristics of a downstream industry included IT intensity, and competitiveness. In addressing the importance of the IA team composition, communication between chief executive officers (CEOs), and information technology (IT) professionals is necessary (Ayyagari et al., 2011; Hall et al., 2014).

Litwin (2011) discovered that the link between the technical team involvement, and the organizational performance was not precise, and that the diffusion of information technology in the workplace complicated the relationship. Weiss and Adams (2011) contended that information technology professionals were aware of security concerns associated with projects, and strived to reduce threats to security. The organizational security policy and information security training should be sociotechnical (Sung & Su, 2013). Corporate leaders should consider training as a primary method of protecting information systems, and the teams that perform such task (Iivonen, 2013; Sung & Su, 2013; Teasley, Jordan, & Sangtani, 2012).

Project performance could link to effective team composition, project plans, and budget in conformance to quality objectives, project cost, and schedule to achieve technical, and organizational success (Xue, Zhang, Ling, & Zhao, 2013). Moreover, IA project teams are seen to be short term, involve cross functional experience, and often associated with deliverable priorities (Teasley et al., 2012). Seo, Boonstra, and Offenbeek (2011) noted that as part of the technological strategies, stress should be

placed on the importance of training, the quality of task significance, and work satisfaction, which may contribute to project effectiveness. The leadership of IT security teams should align staff in conjunction with talents to reduce the time spent on training under experienced staff to ensure the success of the team (Martin et al., 2011). Basten, Joosten, and Mellis (2011) suggested that finding the best people to fit in a team dynamic consist of looking for employees who fits in with the existing company culture.

Project Management Spectrum

Project managers play an important role in contributing to the delivery of successful IT projects (Liu, Zhang, Keil, & Chen, 2010). The PM's leadership role is important in motivating team members, and creating an effective working environment to allow the project to meet challenges (Anantatmula, 2010; Neverauskas, Bakinaite, & Meiliene, 2013). Hahn, Bredillett, Gyeung-Min, and Taloc (2012) discovered that there was a relationship between a project manager's leadership competencies, and project success. The objective was to identify those characteristics common to the successful hire of project managers, from the perspectives of IT recruiters (Hernandez et al., 2011; Starkweather & Stevenson, 2011). A key challenge for a project manager is to ensure that all team member goals align with the project objectives (Narayanaswamy et al., 2013). Basten et al. (2011) reasoned that for project managers to be successful in leading IT security based projects, technical specialties, technical management, business functional, interpersonal, and management skills should be succinct.

Project managers selected on technical or managerial expertise lacked the required competencies to deliver a successful IT security based project (Darrell et al.,

2010; Narayanaswamy et al., 2013). The soft competencies of the IT project managers were vital during the initiation, planning, implementation, and closeout phases to ensure project success (Levin, 2011; Liu et al., 2010). The expectation of project managers is to be proactive in monitoring, distinguishing, and mitigating issues that can get out of control during the project, so that increases in cost is avoided (Narayanaswamy et al., 2013). Basten et al. (2011) identified that there should be continuous project based learning to further promote the development of necessary skills, and knowledge for successful project management, and one of the ways of doing so was in documenting risks. Liu et al. (2010) noted that even if project management documents the risks and there is an attempt to control them, external uncertainty such as competitive threats, regulatory changes, and market shifts add threats to the project, and may limit the unexpected benefits.

The key dimensions of the project management associated with successful project outcomes include, appropriate collaborative behaviors, and transformational leadership (Rowland, 2014). In evaluating the critical success factors that identified the parameters influencing project success, Mishra, Dangaych, and Mittal (2011) discovered that communication within the project team was the most effective strategy. Anantatmula (2010) noted that some projects fail, which underlined the importance of the PM's roll in context, in spite of advances in the project management sector. Narayanaswamy et al. (2013) concluded that it was important for PMs to promote team members to utilize extra time, effort, and skill to perform roles outside of the standard job description, thereby helping the other members to complete important tasks. IT security based projects are

increasing in scope and complexity, intense business competition, and changing organizational processes and structures. In some cases, businesses have turned to suppliers of IT services to deliver tough projects (Sinkovics, Jean, Roath, & Cavusgil, 2011).

To effectively manage an IT project from start to finish, the project management process includes the stages of initiation, planning, execution, controlling, and closing (Hahn, Bredillett, Gyeung-Min, & Taloc, 2012). The PM is responsible for meeting the needs of customers and should have a fair knowledge of the IA field to understand project tasks (Anantatmula, 2010). Though having an understanding and relational equity could minimize control loss, it is important to identify the perspectives of the team members, and project manager while formulating, and monitoring plans to promote the success of an IT security project (Narayanaswamy et al., 2013). Liu, Zhang, Keil, and Chen (2010) discovered that the number one risk in IT projects is the lack of support from subject matter experts. Levin (2011) suggested that successful project management competency is linked to project success.

Subject Matter Expert Spectrum

The SME has plays a critical role in defining business needs, technical processes, test requirements, and software functionality (Lopez-Martin & Abran, 2012; Sharpe, 2013; Muller & Pfleger, 2014). One of the variables associated with the management of IT projects is the lack of expertise (Liu et al., 2010). Subject matter experts (SMEs) have specific knowledge pertaining to the information technology security that enhances the team's understanding of any given legacy process (Sharpe, 2013). Within the IA sector,

SMEs who worked in the analyst discipline, were responsible for understanding the Federal Bureau of Investigation's (FBI) intelligence collection capabilities across the FBI, and with the entire U.S. intelligence community (Yeoh, Tan, Low, & Tei, 2010). A key role of the SME was to identify, and reconcile the practical, and people issues that can delay projects. The SMEs balanced the hard and soft skills in delivering business change initiatives, which were important because organizations were striving towards world class standards in project delivery (Gholami, 2012).

SMEs play an important role in defining IT security functionality and business needs and thus, are responsible for defining the business policies, procedure, and processes to enable projects successful completion (Lee & Donohue, 2012; Silverstone & Keeler, 2013). Views expressed by Dutta, Peng, and Choudhary (2013), indicated the importance of establishing a relationship between project managers, and subject matter experts, and this lack in adoption of this approach in all global practices deserves mention. The knowledge and skills of SMEs were imperative in identifying the tasks within the information technology industry (Bradshaw, Cragg, & Pulakanam, 2013). The utilization of SMEs focused on completing various project tasks, and not the overseeing of projects because the value of the SMEs kept pace with the changing information technology standards (Iivonen, 2013). Santos, Soares, and Carvalho (2012), noted that project reviews focused on project justification and not organizational alignment.

Project managers often hire SMEs to overcome knowledge deficits and ensure accuracy in project performance (Floyd, Xu, Atkins, & Caldwell, 2013). The lack of subject matter expertise is significant enough to add risk to a project (Liu et al., 2010).

Dutta, Peng, and Choudhary (2013) noted that project managers may not know it all, as their job is to make sure that the expert hired has the specific resources to complete the assigned project on time, and on budget. The PMs may rely on SMEs to identify potential risk to a project, and make deliverables estimations (Lee & Donohue, 2012). Floyd et al. (2013) stated that SMEs provide specific guidance, which is an assessment that is critical to a project's overall success.

Sustainability and Information Technology

An industry's growth could provide sustainable value, and provide it with the ability to make a significant positive difference in the world (Lim, Stratopoulos, & Wirjanto, 2013; Milne & Gray, 2013). The organizations need to change strategic guidelines as the industries, and competitors change (Pagani, 2013). The adoption of sustainable information technology is at an early stage, but the issue of sustaining the environment has brought much needed attention to the IA field (Perez-Batres, Miller, Pisani, Henriques, & Renau-Spulveda, 2012; Tarasovich & Lyons, 2011). Gobble (2012) utilized the belief–action–outcome (BAO) framework to study the basis of implementing a plan that aided the information system industry in improving environmental sustainability. Gobble discovered that it was because companies were an overarching reflection that contributed to the deterioration and sometimes, improvement of the earth's ecosystem. Technological improvements have been beneficial to organizations, creating jobs, and identifying the type of information technology skills needed for a specific job (Poonpol, Limsuwan, & Satchawatee, 2013). Elliot (2011) selected, analyzed, and synthesized relevant literature to develop a framework for the information technology

business transformation initiative in an effort to work toward environmental sustainability.

IT based companies drastically reduced the amount of energy spent each year by continuously implementing IT sustainability programs (Chen, Ramamurthy, & Wen, 2012). Ussahawanitchakit (2011) utilized 111 information technology companies located in Thailand to determine that corporate initiative does have a positive effect on firm sustainability. Harmon and Moolenkamp (2012) demonstrated the IS field leveraged an ecological sustainable society, and proposed ways for the information systems community to purposefully participate in the development of environmentally sustainable business practices. For leaders to understand what influences sustainability within the industry, an understanding of the organizational environment must be realized (Abid, 2013). Lim et al. (2013) posited that the skills of IA professionals are critical to an organization's ability to sustain its IT enabled competitive advantage, because a good corporate reputation is the basis for organizations to win government contracts. Sustainability is more than just preservation of the earth's ecosystem; it is also the preservation of the future. The essence of sustainability lies in creating tomorrow's competitive advantages faster than competitors mimic the ones that are applicable (Milne & Gray, 2013; Scott-Jackson, Druck, Mortimer, & Viney, 2011).

Sustainability represents the critical factors necessary for the organization to successfully compete (Shepherd & Patzelt, 2011). Ariwa and Syvertsen (2013) stated that it is important to balance the needs of people with economic priorities, and environmental sustainability. Risk management effectiveness includes corporate

governance, organizational operational efficiency, and regulatory compliances that have a direct effect on the IA industry sustainability model (Poonpol et al., 2013). For an industry to be economically sustainable, it has to be profitable in the traditional sense, while practicing the concept of sustainability within specific organizational endeavors (Abid, 2013). Martin et al. (2011) contended that the proper risk management process utilizes the right methods and tools to manage risks, and evaluate the probability of an unforeseen incident that could lead to impede project success. The implementation of risk management could increase stability in the IA industry as a proactive disposition is useful to fix known issues, which can add also value, and increase opportunities for sustainability (Poonpol et al., 2013).

Leadership in Practice

According to Quigley (2013), leadership efficacy involves the experience, and capability to lead people towards an organization's goal, and fulfill the roles that are necessary in that capacity. Sarwar (2013) defined the important leadership traits as sociability, self-confidence, intelligence, tolerance for ambiguity, high energy, and drive, dominance and self-monitoring. Within the IA based organizations, leaderships expectedly manage the organizational information resources, offering vision for the role of IT security in the firm, promoting IT security processes as an agent of business change, redesigning team strategy, and creating business value (Banker, Hu, Pavlou, & Luftman, 2011). The understanding of responsible leadership addressed the challenges of globalization, and offered an agenda for future research in the IA field. The role of leadership draws on procedural practices, which combine the macro view of the business

firm as a political actor with the micro view of leadership (Levine & Boaks, 2014; Voegtlin et al., 2011; Waldman, 2011). Ertureten, Cemalcilar, and Aycan (2013) contended that it is important for team leads and managers to stimulate interest among subordinates for new perspectives, generate awareness for the mission and vision of the group, develop them to reach higher levels of potential, motivate them to look beyond individual interest, and consider the greater good of respective teams.

In applying responsible leadership, Cameron (2011) recognized that the management team, including the senior executives, needed to evaluate security in terms of which business assets should be protected, and resolved to regularize IA processes. In both research, and practices of responsible leadership within the information technology field, IA professionals, and environmental factors have triggered interest (Pless & Maak, 2011; Shoraka, 2011). Effective leadership practices are fundamental to the survival, and sustainability of the information assurance industry and its professionals (Freeman & Auster, 2011; Schuh, Zhang, & Tian, 2013; Wang, Chen, & Lin, 2013). Ineffective leaders may be the reason for lowered organizational commitment, lowered job satisfaction, and high turnover rate; while effective leaders encourage subordinates to reach higher performance standards, and initiate growth, to positively change the organization (Ertureten, Cemalcilar, & Aycan, 2013). A manifestation of effective leadership may depict the linking of information management capability with three important organizational competencies; to include, process management, customer management, and performance management (Mithas, Ramasubbu, & Sambamurthy, 2011). Great leaders are responsible for creating a vision for an organization, articulating

the vision to the employees, building on the shared vision, creating a plan to achieve the vision, and effectively guiding organizations in new directions (Parris & Peachey, 2013).

Conflicts between Technology and Management

The dependence on information security networks for business operations has focused the need for managerial attention (Chen, Kataria, & Krishnan, 2011). The U. S. federal government has implemented various certification and accreditation (C&A) frameworks to evaluate the effectiveness of the information technology security infrastructure governed by practices, policies, and procedures. Those frameworks included guidance from the National Institute of Standards and Technology (NIST), the Department of Defense Information Assurance Certification and Accreditation Program (DIACAP), and the Intelligence Community Directive (ICD) (Martin et al., 2011). Unfortunately, there seems to be limited attention directed toward the management of such guidance and if not managed correctly, the development of such frameworks may have been time consuming, and costly. The oversight had implications for user effectiveness, the value extracted from IS investments, and overall organizational performance (Furneaux & Wade, 2011). With an increase in the number, and diversity of attacks, a concern for organizations was to keep the networks, and systems secure; therefore, adequate focus on the management of such technology and frameworks that govern such security are needed (Chrum, 2011; Martin et al., 2011).

Existing research has addressed the measurement, and cultivation of an information security program; however, not how to grow that culture (McIntosh, 2011). IA professionals recognized that organizations needed an information security culture to

ensure the security of information assets in organizations beyond technological defenses, and best practices (Zhao et al., 2013). In observing industry leaders, and subject matter experts in recognizing trends and shortages in key areas, it was imperative to analyze the market needs (Hutzschenreuter & Horstkotte, 2013). Firms asked how to be more agile in identifying, and responding to strategic information technology alignment for business and IT executives (Bharadwaj, El Sawy, Pavlou, & Venkatraman, 2013; Tallon, 2011). Rupali (2013) contended that the interrelation between technology and the social environment of the industry is dependent upon each other, since information technology requires interactions between people, and social structure.

Success Factors of IT Projects

The definition of project success is meeting the objectives of the project budget, and schedule, while achieving an acceptable level of performance (Cohen, Ornoy, & Keren, 2013). According Kaminsky (2012), learning how to manage the human element of teams is the key to successful projects. In order to accurately define, plan, schedule, execute, and complete a project successfully, a leader needs to have an understanding of the multiple aspects of the project, and utilize leadership strategies, leadership techniques, and leadership tools to do so (Didraga, 2013; Nagadevara, 2012). The need for a flexible system that will provide strategic and operational excellence in organization is caused by the uniqueness of the business environment (Todorovic, Mitrovic, & Bjelica, 2013). There are four aspects of project performance that measure the success of a project including, the perceived value of the project, the implementation process, efficiency of execution, and the customer satisfaction with the final product (Cohen et al., 2013).

Didraga (2013) noted that risk management is an essential process for the successful delivery of an IT projects. Risk management is a strategy by which risks that have already occurred in the past receive continual evaluation, thus often improving upon them to improve the process (Basten, Joosten, & Mellis, 2011; Didraga, 2013; Miller, 2014). Regarding the risks that occur during a project, there are critical factors that must be observed to include, the manager of a project and team members, organization, external environment and the project (Mishra, Dangaych, & Mittal, 2011; Liu et al., 2010; Todorovic et al., 2013; Turner & Zolin, 2012). Establishing clear objectives, project definition, estimating the costs and benefits of the project, implementing effective controlling measure, determining project milestones, formulating operating procedures and guidelines, and assigning specific tasks to project members may be the key success factors of completed projects (Kaminsky, 2012; Nagadevara, 2012). Project success, therefore, relies on the manager to be the agent of change (Basten et al., 2011; Cohen et al., 2013; Mishra et al., 2011).

Turner and Zolin (2012) contended that project success is not only measured by meeting the criteria for the cost, scope of work, and time and quality; but also by the performance of project outcomes, outputs, and impacts and thereby, the achievement of the business objectives, as assessed by the different stakeholders over different timescales. Managers need to identify key success factors and develop the project management approach based upon those factors, which will deliver the success criteria (Mishra et al., 2011; Nagadevara, 2012). One of the key challenges of managing a project is how to measure project success that will contribute to the profit of the entire

organization (Todorovic et al., 2013). A project can be classified as successful when the customer accepts the completion of the project, when the organization can use the work for a previous customer as a reference, if the project did not disturb the operations of the organization, and did not change the corporate culture (Cohen et al., 2013). IT managers play a pivotal role in the success of IT projects; therefore, as IT project success rate have fallen, focus on the professional development of managers has increased (Kaminsky, 2012).

Failure Factors of IT Projects

IT project success rates have continued to decrease, while the project costs are continuing to rise (Kaminsky, 2012; Porter, Gogus, & Yu, 2011). In 2006, only 35% of IT projects were successful, 19% were failures, and 46% of projects were behind schedule, were over budget, and failed to meet the customer's requirement (Liu et al., 2012; Susser, 2012). Williams and Williams (2011) contended that while not all projects fail to meet all the deliverables, the lack or reduction of the originally intended functionality is in line with IT project failure. The main reasons for project failure were poor risk mitigation, incorrect requirements, insufficient planning, and the use of incorrect technical solutions (Frank, Sadeh, & Ashkenasi, 2011). Liu et al. (2012) contended that the top five risk variables that contribute to failed projects include lack of expertise, technological newness, organizational/governmental environment, application size, and application complexity. Other reasons contributing to project failures, included the failure to obtain corporation among multiple stakeholders with the same objectives,

and performance measures used to monitor project progress (Narayanaswamy et al., 2013; Williams & Williams, 2011).

Frank, Sadeh, and Ashkenasi (2011) discovered that one of the most common misconceptions regarding projects is that the utilization of similar tool sets, and strategies for all project activities tend to deliver consistent results. There seems to be a lack of support when it comes to the size of the project, requirements analysis, and the extent of change of the project (Williams & Williams, 2013). Most organizations assume that if a team completes one project that is similar in scope, the specification can be applied to all projects (Frank et. al, 2013). According to Narayanaswamy et al. (2013), IT projects involve complex, knowledge intensive tasks, and teams with a diverse knowledge, and skills which are prone to a high degree of requirement volatility, technological uncertainty, and the need to adopt to a continuously changing environment. Liu et al. (2010) discovered that stakeholders such as the senior executives of IT based projects rarely paid attention to the factors that lead to project failure. The key difficulty with complex projects is that the leaders managing tasks will often implement a solution based on assumption, versus following a reliable project plan (Alderman & Ivory, 2011; Miller, 2014).

Frequently, within an operational environment, the IA professionals who work more on the technical things success is evident when assigned tasks are completed on time, within budget, and according to specifications; however, because of this mindset, leadership of these teams have practiced the same procedure in reporting back to the stakeholders (Frank et al., 2011; Todorovic et al., 2013). Utilizing these measures could

be misleading because, leadership may count the projects as successful that met the time, and budget constraints, but the project did not meet customer requirements. Monitoring the numbers of project failures could decrease adherence to time, quality, and cost objectives; in addition, leadership of teams need to pay more attention to managing relationships with customers (Alderman & Ivory, 2011). Leaders should adopt a flexible leadership style and have social perceptiveness, and behavioral flexibility to ascertain the changing needs in order to establish, and maintain congruent values with the team (Narayanaswamy et al., 2013). The strength of an organization is dependent upon the amount of congruence of fit between structural, and environmental variables, as different projects require different approaches (Frank et al., 2011; Kaminsky, 2012).

Leadership Theories

The assumptions ingrained in the theories of leadership, is that some people inherit leadership traits from birth, and the people who make great leaders have sufficient combination of traits (Bhatti, Maitlo, Shaikh, Hashmi, & Shaikh, 2012). Leaders such as managers, executives, and team leads are the most essential components of an organization for remaining up to date on regularly changing business trends, and for overcoming socioeconomic issues (Hoon, Kolb, Hee Lee, & Kyoung Kim, 2012). Though there are numerous leadership theories, this study will focus on defining seven types of leadership theories to include the great man theory, trait theory, contingency theory, behavioral theory, transactional theory, transformational theory, and the situational theory (Germain, 2012; Hanisch & Wald, 2012; Hoffman, Woehr, Maldagen-

Youngjohn, & Lyons, 2011; Kamisan & King, 2013). The postulations of leadership includes defining how effective leadership is a link to virtues, ethics, and morality, suggesting that this ability of a superior person to influence the behavior of subordinates, and pursue a specific course of action for the benefit of the organization (Bhatti et al., 2012; Lewin et al., 1939; Parris & Peachy, 2013). Quigley (2013) contended that the characteristics of successful leadership include learnable and definable behavior, which is dependent on the leader's concern for production, and people. The success of all political, economic, and organizational systems may depend on the efficient and effective guidance of leaders of these systems (Parris & Peachey, 2013). The leadership theory that grounds this study is the situational leadership theory; however, before defining the specifics of the situational theory, the summary of the other six theories are as follows as a means to compare them to the leadership theory that underpins this study.

Great Man Leadership Theory: The definition of the great man theory is a leader who has the inherent gene to include confidence, social skills, charisma, and intelligence to be a natural leader (Hoffman et al., 2011; Kamisan & King, 2012). Such leaders are those individuals born with those characteristics because most people assume that a leader is different from a regular person in teams of perseverance, persistence, ambition, and intelligence (Cameron, 2011; Mithas et al., 2011; Pless & Maak, 2011). According to Hoffman et al. (2011), the predictors of effective leadership consist of traits such as self-confidence, achievement motivation, decision making, creativity, and dominance. Waldman (2011) contended that the effectiveness is an important outcome associated with the efficiency of leadership. According to German (2012), the relationship between

individual genetic differences, and effective leadership characteristics to include virtues, ethics, and morality, may be habits that people learn and not necessarily inherent.

Trait Leadership Theory: The trait theory identified specific behavioral or personality characteristics such as courage, and extraversion that could be potentially be linked to great leaders (Kamisan & King, 2013; Parris & Peachey, 2013). Germain (2012) contended that the trait leadership theory predicates that leaders are different from non-leaders on the following six traits: self-confidence, drive, knowledge of the industry, honesty and integrity, desire to lead, and cognitive ability. There are difficulties in utilizing the trait theory to define the prominent features of leadership, because the people that possess such traits are either not placed in leadership roles, or lack enthusiasm for such roles (Bhatti et al., 2012; Freeman & Auster, 2011; Voegtlin et al., 2011). Although trait theory often focuses on what traits leadership has, the theory does not identify a set of principals about the types of leaders needed in a particular situation, or what leaders should do if undergoing an exact set of circumstances (Germain, 2012; Hoffman et al., 2011). Effective leaders, therefore, are different in some fundamental and identifiable ways from leaders that are not effective (Germain, 2012).

Contingency Leadership Theory: The contingency leadership theory places emphasis on leaders who are effective at applying a personal style of leadership to the specific situation (Hanisch & Wald, 2012). As such, contingency theory focuses on specific variables related to the environment that may determine the particular type of leadership that will be useful (Freeman & Auster, 2011; Germain, 2012). In researching project success or failures, not only is the leadership processes evaluated, the contingency

theory extends this approach by also researching the organizational environment as well (Cameron, 2011; Hanisch & Wald, 2012). The project management field fits this theory because projects are often complex social systems that interact with the specific environment (Anantatmula, 2010; Narayanaswamy et al., 2013). Thereby, Hanisch and Wald (2012) noted that project success depends on a number of variables that include the qualities of subordinates, leadership style, and the situation of the project.

Behavioral Leadership Theory: The description of the behavioral leadership theory is of the implication that the leadership capability is learnable, and that success is definable in terms of actions that are desirable (Germain, 2012; Kopelman, Prottas, & Falk, 2012). Behaviors appear categorized into four groups, which include, task oriented behaviors, change oriented behaviors, relational oriented behaviors, and passive leadership (Kamisan & King, 2013; Kopelman et al., 2012). According to Derue, Nahrgang, Wellman, and Humphrey (2011), the behavioral theory designation closely reflects relational oriented behaviors such as consideration, empowerment, participative, developing, and enabling. One possible mechanism through which the leader traits influence leadership effectiveness is an important classification of the behavioral leadership theory (Hanisch & Wald, 2012; Hoon et al., 2012). Leadership traits such as gender, and personality are behaviors that associate with those traits, the idea is that leader behavior intercede the relationship between leader traits, and the effectiveness (Derue, Nahrgang, Wellman, & Humphrey, 2011; Germain, 2012; Hoffman et al., 2011).

Transformational Leadership Theory: According to Hoon, Kolb, Hee Lee, and Kyoung Kim (2012), the four fundamental characteristics of transformational leaders are

inspiration, motivation, individual consideration, and intellectual stimulation. Through the strong emphasis on the employee's values, needs, and morals, transformational leaders encourage the supportive collaboration amongst team members, which is the key team motivation for organizational performance, and process improvement (Hoon et al., 2012; Kamisan & King, 2013). The assumptions behind the transformational theory is that the leader inspires team members by injecting enthusiasm and relate the overall organizational mission, and vision to them, so that all can work towards accomplishing an ultimate goal together (Kamisan & King, 2013). Employees often work in teams, which places a spotlight on the leaders' role in promoting dynamic interactions among employees as well as providing visionary guidelines to the organization (Hoon et al., 2012). Transformational leadership could be instrumental in encouraging the team members' work engagement for effective knowledge creation practices, and dynamic collaboration for constructive knowledge acquisition (Lee & Donohue, 2012; Lim et al., 2013; Voegtlin et al., 2011).

Transactional Leadership Theory: Known as the management theory that is typically on a system of punishment, and rewards, the transactional leadership theory focuses on the role of supervision, group performance, and organizational structure (Kamisan & King, 2013). The transactional leader operates on creating, and implementing work requirements, and rewards structure of which employees are aware off (Banker et al., 2011; Hoon et al., 2012; Shoraka, 2011). According to Kamisan and King (2013), the transactional leader negotiates with employees regarding objectives that are to be achieved by the company through providing rewards for accomplishing the

goals or threats of punishment for poor performance such as rescinding annual raises, or withdrawing bonuses. The transactional theory often divides the gap between the leader, and the subordinates making the leader not to communicate, and interact with employees of which the leader uses the management by exception rule; in that if a project is operating as intended, then it does not need immediate attention (Freeman & Auster, 2011; Hoffman et al., 2011). Kamisan and King (2013) noted that the transactional style of leadership needs to diminish in order to strengthen the leadership practices.

Situational Leadership Theory: The situational leadership theory, which underpins this study is a theory that postulates that managers choose the appropriate course of action that suits the situation, in that various leadership styles are more appropriate for distinct types of decision making that should positively affect the team (Bhatti et al., 2012; Ramkissoon, 2013). An effective leader does not fall into a specific preferred style when a decision is in need (Lewin et al., 1939). Parris and Peachey (2013) contended that an appropriate leadership style should only be decided upon after the leader has assessed the employees' readiness to perform the specific task. The situational leadership centers on two main types of leadership behavior; the leader directive in which a leader engages in encouragement, participating in two way communication, and facilitating behaviors, and the relationship behavior in which the leader defines roles such as the who, where, what, and when of assignment specifics (Ramkissoon, 2013). The factors that influence leadership include the situation, follower, and leader; therefore, the leaders' style is always evolving, and different styles of leading may influence the decisions made in the workplace (McFadzean et al., 2011). The most

successful leaders adjust leadership style to the maturity of the group, and the tasks that are planned (Ramkissoon, 2013; Lewin et al., 1939; Parris & Peachy, 2013).

Having certain characteristics can associate with being an effective leader including the skill of motivating employees to achieve goals of the organization (Cameron, 2011; Germain, 2012; Sarwar, 2013). Ramkissoon (2013) contended that one area which greatly influences an organization's competitiveness is leadership effectiveness. Perhaps if the IA industry dedicates time to learning, teaching, and implementing effective leadership theories, it may improve the skills of the IT professionals that work within that industry. It is imperative for leaders to enhance effectiveness at gathering, and interpreting critical information, which can enable them to prepare for addressing a wide range of performance situations within the organization (Hoffman et al., 2011; Hoon et al., 2012; McFadzean et al., 2011).

Literature Related to Research Design and Methodology

Hynes (2012) noted that exploring a social or industry phenomenon within qualitative research identifies critical issues, and help to discover new ways to solve problems. The qualitative, phenomenological study approach is conducive for the researcher to accumulate a better understanding of the industry phenomenon through face to face interviews, and follow up questions (Alford, 2011; Bansal & Corley, 2011). Qualitative research may provide the researcher with the means to uncover the views of research subjects for a detailed understanding of a complex issue. Achieving this detail by talking directly with people, going to their homes, or places of work, and allowing them to tell the stories unencumbered by views expressed in literature are possible

(Camfield & Palmer-Jones, 2013). For the purpose of this study, the research included a qualitative design along with the phenomenological methodology. The design, and methodology chosen, was deemed important to gather from the IA professionals' point of view, the effectiveness of the IT security team leadership structure within the information technology industry. Phenomenology ingrains an interpretive process in which the researcher makes an interpretation while maintaining a strong relation to the subject of inquiry (Hynes, 2012).

The project management approach may be the major contributor to the leadership within the IA teams (Anantatmula, 2010; Levin, 2011; Liu et al., 2010). Basten et al. (2011) discovered that there was a shortage of qualified project managers that had knowledge of IT security. Neverauskas et al. (2013) criticized poor project manager skills and lack of top management commitment for failed teams. Keil and Mahring (2010) noted that IA projects failed due to lack of managerial involvement. The invocation of the phenomenological approach may fulfill the potential for further understanding into the nature and workings of the information technology industry, thus researching the management standards and practices (Tirgari, 2012). Other qualitatively based methodologies deemed inappropriate included a case study, ethnography, and grounded theory as these tend to reference a single organization or practice unlike phenomenology, which can be used to focus on an industry (Khan & Lund-Thomsen, 2011; Yu, 2010). The overall purpose of phenomenology is to abridge individual experiences with an anomaly to a description of the universal essence (Alford, 2011).

Other Phenomenological Based Studies

Phenomenology enables researchers to obtain deep, meaningful, and worthy insights that relate to what it means to be a person, industry, or profession regarding the context of a specific area of study (Sinden et al., 2013). In the soccer ball manufacturing industry, Khan and Lund-Thomsen (2011) utilized the phenomenological approach to discover that there was a difference of corporate social responsibility between the developing world and the western world. In another study, Sangganjanavanich, Lenz, and Cavazos (2011) interviewed eight undergraduate international students to discover the challenges faced while searching for employment in the United States. In assessing the information technology policies and procedures against unstructured data, Tirgari (2012) utilized phenomenology to study the perceptions and lived experiences of IA professionals and to learn about the decision making process of various organizations concerning network storage. Decker and Decker (2012) applied phenomenology to assess the everyday lived experiences of elderly people in nursing homes. The phenomenological point of view iterates the meaning for several individuals of exposure to life experiences, and correlates interests in common as the phenomenon is being experienced (Bansal & Corley, 201l; Nourkova, 2011).

Potential Themes Explored

There are more information assurance based projects that the project manager leads (Levin, 2011). The aspiration in fulfilling the long standing and largely unanswered question by using qualitative research remains a reality. In this study, the focus was to gain deep and meaningful insight on whether it would be of advantage, and benefit to ensure project success with the individual who lead the IT security teams to

have project management expertise or subject matter expertise (Clifton, 2012). SMEs have the technical knowledge of IT security based projects; may be the management skills needed to effectively lead a technical team are lacking. Perhaps PMs who aspire to work within the IT security industry should acquire information assurance based training. The qualitative phenomenological methodology served to gain a deeper level of insight from qualified IA professionals.

Transition and Summary

The purpose of Section 1 was to highlight the background of the problem, problem statement, purpose statement, nature of the study, research questions, the conceptual framework, assumptions, limitations, delimitations, and the significance of the study. Section 1 included a discussion and review of the body of professional and academic literature, under specific grouping and across eight major areas. These major areas included: information technology security industry vitality, the importance of a strategic IT governance model, leading technical teams, project management spectrum, subject matter expert spectrum, sustainability and information technology, leadership in practice, and conflicts between technology and management.

Section 2 includes my rationale for the qualitative method and phenomenology research design. The details also include the justification of the choice of the chosen methodology by presenting the purpose statement, study participants, research method and design, population and sampling, data collection methods, data analysis technique, reliability, and validity. Section 3 includes an overview of the study, presentation of the findings, applications to professional practice, implications for social change,

recommendation for action and further study, reflections, and study conclusions.

Section 2: The Project

Research is the inquiry of a specific topic adopting a variety of scholarly resources that establishes facts, analyzes information, and reaches new conclusions (Bailey, 2014). In this study, the compilation of research included setting the boundaries for the study, collecting information through semistructured interviews, documenting and visualizing materials, as well as establishing protocol for recording and storing information (Davis, 2011; Furneaux & Wade, 2011). The purpose of Section 2 is to further assess the leadership matrix within the information assurance industry and accurately define the sample size needed to test the problem statement. In this section, I describe the purpose statement, participants, research method and design, population and sampling, data collection methods, data analysis technique, reliability, and validity of the study.

Purpose Statement

The purpose of this qualitative phenomenology study was to discover the critical factors that IT leaders need to improve information technology project team performance. The utilization of subject matter experts (SMEs) is commonplace throughout the lifecycle of an IT security based project. SMEs are functional experts in their respective roles because the project manager (PM) relies on SMEs to ensure the accuracy of the delivered work product (Muller & Pfleger, 2014). The PM is responsible for managing the project scope, and is not responsible for the actual security-based tasks (Basten et al., 2011; Starkweather & Stevenson, 2011). Billions of dollars represent the waste each year on

failed IT security projects and the blame has often fallen on leadership of IT security teams (Susser, 2012).

In this qualitative, phenomenological study, the research involved interviews of 20 IT security professionals; 10 were project managers, and the remaining 10 were subject matter experts. I explored the lived experiences of the participants on the effectiveness of IT security team leadership structures favored within the IA industry. The participants were professionals from 30 IT consulting organizations within the Washington, District of Columbia (DC) Metropolitan geographic area, and met the research criteria of the study. I had access to participants because of working in the IA industry for over 15 years.

Data from this study might contribute to social change by providing new knowledge that could have a bearing on the issues that relate to project success. Project success correlated to organizational wellbeing can translate into more project opportunities for the firm and project teams. The rewards of project success can have a direct bearing on the longevity and career of IA professionals. The data from this study could bring forth knowledge on project success, and make a contribution to positive social change as the lives, careers, and job security of IT professionals hinge on successful project execution.

Role of the Researcher

The progress of an industry is dependent on a long-range effort to improve renewal processes through a collaborative management of industry culture (Al-Bourini et al., 2013). I have over 14 years of experience within the IT security industry. The

typical structure of an IT Security team consists of a project manager, technical lead, subject matter expert, technical writer, senior security analyst, and junior security analyst. The overall manager, also considered the project manager, represents the leadership of most IA teams. Sung and Su (2013) found that most project managers of such teams did not have any background in IT Security.

Organizations have to decide to adapt to technological changes in management information systems, or degenerate in organizational viability (Crespo, 2011). The concern over the IA management phenomenon also expressed by my peers who work in other IT consulting companies across different government contracts within the same field may add to the rationale for the research. Keil and Mahring (2010) stated that the proper leadership of IT security projects is essential for all organizations; however, the failure rate of IT projects is alarming. According to Davidson and Sebastian (2011), a conglomerate of IT contracting organizations are losing government contracts due to the inability to perform project tasks assigned to them. While the views of this source focus on government contracts, the negative consequences on private and semi-private contracts do not deviate from this truth (Hong, 2013).

I analyzed the experiences of study participants' as narrated in the interviews conducted. The analysis of the interviews followed a five-step approach and included bracketing, horizontalization, variation, synthesis, and textural and structural description (Moustakas, 1994). I explored, collected, analyzed, and presented the participant feedback in an organized assembly for easier interpretation of the findings (Bailey, 2014; Lo, 2012). To collect data for this study, the research plan included the utilization of a

list of 11 semistructured, open ended interview questions. I recorded the study participants' responses using an audio tape recorder and took notes to document observations of participants' feelings and expressions. The interview guide outlined steps to ensure flexibility in fostering deeper discussions and facilitate recording of additional questions and discussion that arose from the responses generated, as these contributed to the depth of the insights.

Qualitative inquiry represents the collection of field notes, interviews, recordings, conversations, photographs, and memos to self that grows into an interpretive, naturalistic approach to the environment that surrounds it (Richards, 2012). My experience within the IT security industry made the participants comfortable with revealing their true thoughts on the leadership practices. Qualitative research is a situated activity that locates the observer in the professional practice, which also consists of a set of material and interpretive practices that make the world visible (Richards, 2012).

Participants

Purposive sampling is a smaller set of a larger population drawn from a specific cultural domain of which correlate to research objectives (Leahy, 2013). The total sample size was 20 information assurance professionals; 10 were project managers, and the other 10 were subject matter experts, which helped in obtaining deep and meaningful insight. Details on past leadership based information technology studies indicated sample size variations of five to twenty participants for a qualitatively based inquiry (Alford, 2011; Marshall, Cardon, Poddar, & Fontenot, 2013; Reiter, Stewart, & Bruce, 2011). Tirgari (2012) advocated interviewing five to twenty-five professionals that have all

experienced the same phenomenon, while Von Hagel and Miller (2011) suggested only interviewing up to 20 individuals to achieve data saturation. The most important element is to describe the meaning of the phenomenon for a small number of participants who have experienced it (Bartkowiak, 2012; Wang, Bickle, & Harril, 2010). The access to the participants for further study was not difficult. Personal presence in the IT security industry helped in selecting IA professionals who met the specific eligibility criteria. Instead of randomizing samples, it is more effective for qualitative researchers to deliberately select participants for their study (Marshall et al., 2013; Starke, 2013; Steelman, Hammer, & Limayem, 2014).

I formally recruited the participants by contacting these professionals by phone, e-mail, or in person. Participants filled out consent forms authorizing me to gain permission to use their responses for the study. A copy of this consent form, located in Appendix B, includes pertinent details. In keeping with ethical practices, I made efforts to ensure anonymity by assigning codes and thus protected the identities of the participants. The planned data retention and maintenance of all data for 5 years after the date of the study complies with Walden University's ethical research norms. After 5 years, I will shred paper documents and delete of soft copies of data from my laptop using specific software that permanently erases files. This represents the data management plans that maintain high ethical research practice standards.

The research plan included interviewing participants in person (Alford, 2011; Hynes, 2012; Moustakas, 1994). Participating in this study may have involved minor discomfort; However, no more than typically encountered in daily life, to include stress,

fatigue, or becoming upset. The participants, therefore, experienced no harm as this study did not pose any risks to the participants' safety or wellbeing. Qualitative research methods are not experimental since the research steps are dependent on interpretive analysis, are subjective, and have no defined variables (Venkatesh, Brown, & Bala, 2013). I ensured conformance and compliance to ethical practices norms and expectations of Walden University.

Research Method and Design

The qualitative method is an approach of exploring data for patterns, then analyzing it for possible emergence of themes (Fogle, 2011; Hynes, 2012). In using the phenomenological approach, the research included collecting the views from IA professionals who have worked extensively within the IT security industry. The data that I collected also reflected a composite description of participant experiences and in the course of analysis, led to further development into themes for deeper insights in meeting the objectives of the study (Yu, 2010).

The phenomenological design is most appropriate because the technique was useful to obtain information about the leadership matrix within the IT security industry, and gain an understanding if the leadership strategies need development. The lived experiences of the project managers and subject matter experts were of importance (Sinden et al., 2013). Phenomenology is an interpretive process in which the researcher can acquire insight into the lived experiences of participants and gain a deeper understanding of the phenomenon (Bansal & Corley, 2011; Yu, 2010).

Alford (2011) used the qualitative phenomenological approach to explore if

women were under represented as leaders within the information technology field. Dhar (2013) obtained insight into the areas affecting information technology certifier abilities to evaluate technical infrastructures by applying the method of phenomenology. Reiter et al. (2011) ascertained the utility of the qualitative phenomenological inquiry method to identify how the IT project manager's interpersonal communication with contractors affected intelligence organization performance efficiency. In referencing the aforementioned studies, the importance was stressed on assessing the participants lived experiences. The phenomenological design is the appropriate qualitative research method for this study because the aforementioned three studies were information technology based and the topic of research was similar to this research study (Alford, 2011; Dhar, 2013; Reiter et al., 2011).

Research Method

Qualitative research is fluid and cannot be strict in nature; and the primary objective of this type of research is to identify, and analyze the problem while providing a holistic account of the subject matter at hand (Sinkovics & Alfodi, 2012). The qualitative method chosen for this research may reflect the rationale that using a small sample size of qualified IT professionals within the IA industry, and a diversity of views would yield deeper meaning and insight on the optimal choices of leading IA security projects (Steelman et al., 2014). A requisite for emotional awareness, passion recognition, and analytical skills needed during qualitative research are vital as the interpretation, and analysis can lead to new discoveries at the culmination of the research process (Sinkovics & Alfodi, 2012).

According to Marshall et al. (2013), data saturation is a method that is applicable to all qualitative based studies that utilizes interviews as the primary collection instrument. Von Hagel and Miller (2011) suggested that data saturation occurs when the data is repetitive to the point of diminishing returns; which most often occurs at 12 participants for phenomenological based studies. In a qualitative study, the interview length time for each participant typically spans 60 to 90 minutes, as the aim is to reach data saturation (Gill, Stewart, Treasure, & Chadwick, 2008; Marshall et al., 2013). Semistructured retrospective interviews lasting 1 to 1.5 hours are typical in phenomenological research (Englander, 2012; Rubin & Rubin, 2012; van Manen, 1990).

Fourteen of the twenty interviews were approximately 60 minutes in length, while the other 6 participants' interviews spanned 75 minutes. Because the interview questions were open-ended, the length of each interview session was unique and dependent on the openness and personality trait of the participant. The stated reoccurring phenomenon was that most of the IA projects failed due to lack of: training, communication, technical knowledge, and/or leadership skills.

The five-step approach to include, bracketing, horizontalization, variation, synthesis, and textural and structural description was the phenomenology data analysis technique used to facilitate the organization of the interview results (Moustakas, 1994). While analyzing the interview transcripts, the significant statements that provided an understanding of how the participants experienced the phenomenon was underlined, reduced, and then clusters were developed to create themes (Marais, 2012; Moustakas, 1994; Purucker et al., 2012; Tirgari, 2012). Epoché is a process in which assumptions

and biases are set aside to describe a phenomenon solely from data collected (Moustakas, 1994; Patton, 2014). The description of the experiences of the participants was the main focal point, instead of personal interpretations of the data (Moutakas, 1994).

The purpose of the quantitative method is to apply bivariate and univariate analysis, hypothesis testing, and statistical inference; along with variables and measurements to obtain research data (Vaitkevicius & Kazokiene, 2013). The mixed method draws from the strengths of qualitative and quantitative approaches to combine observations and interviews with numerical statistical data (Zachariadis et al., 2013). The qualitative methodology was a better choice for this research because the other methods do not provide the desired understanding, meaning, and interpretation of the phenomenon (Nourkova, 2011).

Research Design

According to Prowse and Camfield (2013), there are five common types of qualitative research designs. Those designs include narrative research, phenomenology, grounded theory, ethnography, and case study. For deeper understanding of the phenomenon of IA leadership, the invocation of the phenomenological design seemed an appropriate choice. Phenomenology is a method in which the procedure involves studying a small number of subjects through extensive and prolonged engagement to develop patterns, and relationships of meaning so that effective data gathering can be achievable (Moustakas, 1994). The phenomenological approach also provides a systematic, logical, and coherent data for accomplishing the synthesis needed to arrive at a peak description of an experience (Sangganjanavanich et al., 2011).

The case study design requires the collection of data from a specific individual, specific organization, or specific context; while the grounded theory design is the theoretical sampling of groups beyond the target participants (Davis, 2011). Although a case study may be an ideal approach to explore the interaction of events, this design tends to only focus on a small number of cases (Wahyuni, 2012; Wynn & Williams, 2012). The case study design was not suitable for this study because the goal was not to study existing cases, but to explore the lived experiences of the participants. The grounded theory design focus is not on testing observed phenomenon taken from existing frameworks, rather, the research is dependent on the development of new theories grounded in data collected (Dunne, 2011; Edberg, Ivanova, & Kuechler, 2012). The grounded theory design was not optimal for this study because the purpose of phenomenology is to test the observed phenomenon within the IT security field.

The narrative design is an event or action that chronologically connects, while ethnography is appropriate where participants are not physically available in the same place, or develop shared patterns of beliefs (David, 2011). In an effective narrative design research, participants define experience through autobiographies of roles in the specified environment of study (Richards, 2012; Ryen, 2011). The narrative design was not adequate for this study because the autobiographies of participants may not explain the observed phenomenon within the IA industry.

The ethnography method requires extended visits to the field setting, data collection to occur through observing interdependent group interactions, and participating in the activities where the research is being carried out (Bonnemaizon & Batat, 2011;

Khan & Lund-Thomsen, 2011). Whereas, Huby, Harries, and Grant (2011) contended that micro ethnography studies tend to focus on detailed observations of a single social event over a shorter period of time. Ethnography was not suitable because collecting data from participants based on individual lived experiences is of importance and not observing the participants in the field setting.

Phenomenology was appropriate for this study because the design is conducive for the researcher to be immersed in the phenomenon. This process allows gathering data that provides intimate levels of detail, depth, and specificity with the participants lived experiences that cohabitate within the IT security field respectively (Tirgari, 2012; Turcan, 2011; Yu, 2010). Though data saturation can be reached at 5 to 18 participants (Gill, 2008; Tigari, 2012; Von Hagel et al., 2011), it was achieved at 10 participants for this study. Repetition of key statements appeared noticeable after the 10th participant and included the following: more funding for training, deficit in technical knowledge of leadership, lack of communication amongst leadership and team members, and some IA professionals not having the right skillset to perform the job. Data was examined utilizing the bracketing, horizontalization, variation, synthesis, and textural and structural process in which the analysis of interview responses took place, and reduced to significant quotes to develop themes (Moustakas, 1994).

Population and Sampling

The purpose of the information assurance (IA) industry is to administer security mandates to maintain the confidentially, integrity, and availability of information systems and computer networks as technology transmits, processes, and store information

(Cuthrell, 2010). As an important functional area, IT security plays a strategic role by providing all departments and functions across an organization with a private and confidential access to information (Ghezal, 2011). Achieving a balance of views and holistic analysis prompted the rationale for choosing a purposive sampling of 10 SMEs and 10 PMs drawn from the information assurance field (Morse, 2000). The SMEs and the PMs are the leaders of IT teams and so, the input from both sides contributed to an equal balance of data adequate, given the nature of this study (Hahn et al., 2012; Lopez-Martin & Abran, 2012; Neverauskas et al., 2013; Silverstone & Keeler, 2013). This sampling choice and strategy hinged on the premise that qualified participants would offer in depth perspectives from personal lived experiences on the critical factors associated with the success and failures of IT security projects.

The total number of 20 participants helped fulfil the sample size and data saturation for this study. The participants chosen were from a population of 30 IT consulting organizations located within the Washington, DC Metropolitan area which included the states of District of Columbia, Maryland, and Virginia. In conducting a qualitative, phenomenological-based research, Sangganjanavanich et al. (2011) contended that the sample size of an effective phenomenological-based study should be at least 8 subjects. The sample size of 5 to 20 participants is adequate enough to extract meaningful, rich data in a phenomenology based study (Alford, 2011; Steelman et al., 2014).

The eligibility criteria for the project managers and subject matter experts chosen from the IA field included meeting the following requirements: (a) a minimum of 7 years

of experience, (b) located within the Washington DC metropolitan area, (c) served in a management role for a minimum of 3 years, (d) worked for more than two IT consulting organizations within the Washington, DC metropolitan area, (e) worked on a minimum of three contracts/teams, and (f) managed a team of over seven people. In studying and observing the leadership matrix within the IT security field, it was imperative to gain a deeper understanding and insights from the IT security professionals exposed to different team scenarios and may have had diverse experiences in working with leaders. The participants gave the consent to have interview sessions recorded, and the face to face interviews took place at a public library within the Washington, DC Metropolitan area.

The research study plan included the use of purposive sampling. My rationale for choosing purposeful sampling stemmed from the greater possibility of ensuring that the sample population specifically met the screening criteria for specific and eligible IT security professionals to participate in this study. The use of purposive sampling becomes justifiable when certain participants, and sites are necessary and of value to gain a deeper understanding of the research problem, and central phenomenon in the study (Turcan, 2011). The intent of this form of sampling is to create a focus of targeting specific characteristics of a population that are of interest, which will best fortify the researcher to answer various research questions accordingly (Gill et al., 2008; Hynes, 2012). Qualitative researchers deliberately select participants for research versus randomizing samples because it is more effective due to the smaller available population (Starke, 2013; Wang et al., 2010).

In going through the interview process, Von Hagel and Miller (2011) reached data saturation at 20 participants in a study that researched the turnover rate of information technology professionals. Tigari (2012) reached data saturation at 20 IT professionals in the study based on assessing IT policies and procedures. Marshall et al. (2013) noted that though only 6-12 participants fulfilled data saturation in phenomenological based studies, it is more appropriate to consider how much interview sessions per participant is useful to reach saturation versus focusing on a specific number. Selecting the correct sample size was important because it affects the results of the research. If the sample size is too small or too large, the conclusions may lead to false inferences (Bonett & Wright, 2011).

It is impossible to demonstrate that the results of a qualitative study, based on a small number of participants, are generalizable to the population (Shenton, 2004). According to Malterud (2001), the ultimate goal of research is to produce information that applies and shareable beyond the study setting. There are no studies, irrespective of the method used, that can provide findings that are universally transferable (Malterud, 2001). Although it is not prudent to state that the results are transferable to the entire population, the results can be generalizable to the specific sample, and further study necessary to extrapolate it beyond the sample (Ahrens et al., 2011).

Ethical Research

The participants were informed (a) at the beginning of the first interview session, (b) in the letter of research scope and introduction in Appendix A, and (c) in the consent form in Appendix B that participation was voluntary and withdrawal was possible without any consequence to them from the interview at any point of the study, and that

there were no incentives awarded to participants. The consenting process is part of the consent form, located in Appendix B, and grants me permission to utilize the data retrieved from the participants during the interview sessions. Once the participant signed the consent form and the researcher fully answered all inquiries from the participants, the interview process began.

The focus of the research question was to explore the leadership structure within the IT security field in which applicants work. The identity of the participants will remain confidential and identified in the study by coded language for researcher identification purposes. Researchers must ensure sole access of data, with provisions for ethical and confidentiality of participants in respect all data acquired in the study. The projection of results, with the removal of identifiers, and the secure storage of data for a maximum of 5 years in a locked safe were followed in this study. The names of the various participants and individual organizations are shielded in the study, thus assuring of the confidentiality and anonymity of the participants. In keeping with research protocol of Walden University, after the expiration of the 5 year period, the data maintenance plan is to destroy all participant data. The plan also includes shredding and incineration of hard copy transcripts from data collected, and deletion of electronic documentation by utilizing specific software that permanently erases files on command.

Data Collection Instruments

The essence of a qualitative study is to rely on the interpretive analysis and intact data collection strategy (Sinkovics & Alfodi, 2012). Effective qualitative research depends on the skills of the researcher to adequately, and comprehensively collect data

(Hynes, 2012). The interview questions located in Appendix C of this study were the primary source of data collection. The aim included determining if subject matter experts or project managers should manage IT security teams, and all the other associated knowledge and discoveries generated from the study on this theme, which may contribute to make the study a worthy contribution to the existing body of knowledge on IT security management leadership.

Semistructured interviews were the primary data collection instrument for this study, in tandem with observations, and notes taken as documentation, which served to gain deep meaningful insight into the phenomenon under study, specific to the IT security industry (Camfield & Palmer-Jones, 2013). Furneaux and Wade (2011) used semistructured interviews with organizational decision makers to get more insight into the final stages of information system life cycle process. McDonald, Oates, Alevizou, Young, and Hwang (2012) used semistructured interviews to assess the relationship between sustainable consumption and the consumers purchase processes. Lastly, Bohari, Rainis, and Marimuthu (2011) found that semistructured interviews were a good approach with the key personnel of a marketing firm in attaining details about the challenges and issues of managing four international hypermarkets. The rationale, therefore, in using semistructured interviews to examine the role leadership plays in failed IT projects appeared logical in view of the reinforcement of studies in this area.

Interviews are an iterative technique used to gather data as the primary information collection method (Fogle, 2011). The process included performing one-on-one individual interviews utilizing the inquiry and questions for feedback, and using

follow-up questions to delve more deeply in the participants lived experiences (Moustakas, 1994). The purpose of the interview questions, located in Appendix C, was to obtain a deeper understanding of the participants' views on the leadership strategies of IA teams. The information derived from the participants facilitated viewing the data from a larger body of knowledge that may be new or already known.

During the qualitative study, it is necessary for the researcher to provide participants the opportunity to get in touch with individual concerns, feelings, and the needs of the business community (Hynes, 2012). The data provided further understanding of the problem and addressed the research question. Pertinent themes emerged from the transcription and analysis of data, which helped to document and capture the study participants' lived experiences from the in depth interviews conducted.

The process for the assessment of reliability and validity of the instrument involved analyzing, and interpreting the responses that the project managers and subject matter experts relayed during the interview sessions. For the interviews to be successful, the categorization of responses, and coding into specific units facilitated the comparison of the research topic that represented a high level abstraction from the study (Marais, 2012). The data from the study align to the conceptual framework of the leadership theory, which grounds this study. The perceptions from project managers and subject matter experts helped to evaluate the opinions and choices in the outlook of managing IT security teams.

Data Collection Technique

In phenomenological research, obtaining deep meaningful insight, the assessment

of significant feedback, and the development of themes represent important aspects of this technique (McDonald et al., 2012). The technique used to collect data was through face to face interview sessions. Reaching a state of epoché required participants to define lived experiences in respect of the phenomenon to facilitate the researcher assessing the statements without preconceived notions or bias (Moustakas, 1994). I set aside my 15 years of experience in the IA field to be receptive to the participants outlook on individual views of leadership strategies enacted in running IT teams. During the sessions, participants responded to 11 semistructured, open-ended interview questions. When I needed clarification on responses participants gave me during the interview session, I asked them for further description of the detail.

The responses were then recorded utilizing an audio tape recorder and I took notes to document my observations of the participants' feelings and expressions. The feedback follows a methodical process for drawing inferences and coding from in depth interviews (Moustakas, 1994). The process starts by allotting units of feedback for assessment using syntactical, referential, propositional, or thematic process, then involves the identification of specific themes and patterns in the data, which may provide a deeper understanding of the phenomenon (Alford, 2011; Marais, 2012).

The interview questions included a unique mix of broad and specific interview questions intended to draw substantive, vital, and rich responses for thorough inquiry (Bansal & Corley, 2011; Wang et al., 2010). The interviews took place at a public library within the Washington, DC metropolitan area. During the transcription stage, the participants were emailed to clarify any disparity on the collected interview data. After

the transcription of interviews, the participants were provided a copy to ensure confirmation of recording and accuracy of documentation (Lackmann et al., 2012; Muchinsky & Raines, 2012).

At the completion of the transcript review, 7 themes were derived from analysis. To ensure the themes I developed were credible, I sent my findings back to the 20 participants for feedback. Ninety-five percent of participants agreed with all the themes, while 5% disagreed with one theme. The participants' feedback assured me that my interpretation of the collected data was accurate. Member checking is also a respondent validation technique that confirms interpretive validity at the conclusion of a study (Morse et al., 2002).

Data saturation was achieved with the first 10 participants evident with repetition of some keywords by interviewees, and included: lack of funding, need for overarching training programs, hiring of qualified staff, and that leadership of IA teams should have both subject matter knowledge and project management expertise. After the interviews of the first 10 participants, the next 10 participants appeared to repeat the same keywords already documented, and no new data seemed to emerge. Data saturation occurs when no new relevant data emerges from participants (Von Hagel and Miller, 2011).

Data Organization Technique

The integration of steps to ensure anonymity and confidentiality of study participants at the beginning of the interview process and in writing within the consent form may reflect appropriate measures. Specific coding to ensure protection of identities of the participants were steps taken to ensure complete confidentiality (Marais, 2012).

The code for each participant was as follows, PM-1, PM-2, PM-3, PM-4, PM-5, PM-6, PM-7, PM-8, PM-9, PM-10, SME-1, SME-2, SME-3, SME-4, SME-5, SME-6, SME-7, SME-8, SME-9, and SME-10. The steps for ethical compliance and participant confidentiality included removal of all identifying information (Hynes, 2012; Vaitkevicius & Kazokiene, 2013). The interview sessions were conducted and transcribed under the individual participant code (Mariais, 2012; Phillips-Pula, Strunk, & Pickler, 2011).

The electronic data protection and safeguards included having user name and password protection on the laptop that the information was being housed in. The hard copy data storage plans include safekeeping for 5 years after the completion of the study, using measures of keeping under lock and key in a safe. At the end of the 5 years, the data management plan include shredding and incineration of hard copy data, and deletion of electronic data files from the hard drive location of research files utilizing specific software that permanently erases files on instruction.

Data Analysis Technique

Qualitative study is dependent on the interpretive analysis of the collected data and the goal of this research is to rely as much as possible on the participants' views of the situation studied (Davis, 2011; Hynes, 2012; Moustakas, 1994). The data analysis technique for this research included inspecting and developing the thematic elements, and drawing conclusions (Bartkowiak, 2012; Purucker, Landwehr, Sprott, & Herrmann, 2012; Starke, 2013). This qualitative, phenomenology based study followed the modified van Kaam method, which is a systematic analysis to obtain the universal meaning from

participants feedback revealing the underlying thematic of experiences through semistructured interviews (David, 2011). The modified van Kaam method is a procedure by which the researcher further analyzes the output of interview questions collected from participants during the interview sessions (Phillips-Pula et al., 2011). The van Kaam is an analysis process that starts by obtaining comprehensive descriptions from participants, and converting those descriptions into themes (Anderson & Eppard, 1998). I utilized the van Kaam method to identify themes by following a process that included: (a) listing all responses under the specific interview question, (b) removing any interview response that were vague or difficult to cluster, and (c) clustering the relevant interview responses and identify the themes (Anderson & Eppard, 1998). Moustakas (1994) further documented the van Kaam method which included: (a) bracketing, (b) horizontalization, (c) categorization, (d) description of textual and structural experiences, and (e) determining the meanings that best describe the lived experiences.

The prepared set of open ended interview questions formulated, helped to focus on the lived experiences of the participants included a unique mix of probing, theoretical and self-reflective questions from 20 IA professionals chosen from the population of 30 IT consulting organizations within the Washington, District of Columbia (DC) Metropolitan geographic area. The interview questions are:

1. Taking into consideration your experiences in your present/post positions, please identify and explain which components contributes to the success of IT project teams?
2. Considering your experiences to date, what is your observation of the leadership

strategies of IT project team performance?

3. What aspects of the leadership strategies within the information assurance industry do you feel are effective?
4. Please identify and explain which component(s) of the IT project team performance structure are successful?
5. Taking into consideration your experiences in your present/post positions, please identify and explain which component(s) of the IT project team performance structure may be improved?
6. In your opinion and based on your experience, what are the barriers or enablers to improving the IT project team performance and why?
7. Please share how you believe project managers have contributed or failed to contribute to the achievement of IT project teams?
8. Please share how you believe subject matter experts have contributed or failed to contribute to the achievement of IT project teams?
9. How do you perceive the role of project managers in leading IT project teams?
10. What do you believe should be the role of subject matter experts in leading IT project teams and why?
11. What additional information would you like to discuss that we have not covered during this interview?

The data collection included recording of interview responses via an audio device while I transcribed to acquire key words and themes that repeated amongst participants. The gathered and completed notes uploaded into the NVivo analysis software helped to

obtain additional themes potentially missed during interview sessions. Data analysis is the method of reviewing interview responses based on replies to open ended questions in order to measure the component of the message (Marais, 2012). An inductive analysis of the data collected includes categorizing. The grouping of categories by assessing multiple comparisons between the data may be useful in providing insight into the phenomenon and to generate more knowledge (Purucker et al., 2012).

Reliability and Validity

The assessment of reliability and validity within a research is important to ensure the outcome of such study (Boesch, Schwaninger, & Scholz, 2013). Lackmann, Ernstberger, and Stich (2012) contended that the consistency and stability of interview responses repeated amongst the sample population that produces similar results adequately defines reliability. Demonstrating reliability for this study included adequately documenting the steps to choose participants, the member checking process, and describing how the data collected from the participants are gathered and analyzed (Lackmann et al., 2012).

Muchinsky and Raines (2013) discovered that validity brings to surface a different aspect of the affiliation between the analysis and the observed conclusion. The data collection included conducting one on one interview sessions with participants and collect data through the use of video recording to ensure validity of responses (Tirgari, 2012). The eligibility criteria for the project managers and subject matter experts selected from the IA field were as follows: (a) a minimum of 7 years of experience, (b) located within the Washington DC metropolitan area, (c) served in a management role for

a minimum of 3 years, (d) worked for more than two IT consulting organizations within the Washington, DC metropolitan area, (e) worked on a minimum of three contracts/teams, and (f) managed a team of over seven people. Likewise, selecting the participants via the specific eligibility criteria also ensured the validity of the interview questions because the participants had the extensive knowledge to confidently answer the questions credibly (Von Hagel & Miller, 2011).

The exploration of validity within this research study aided in removing any discrepancies not related to this study. In doing so, utilizing member checking further ensured validity. Member checking is a quality control process in which the credibility, accuracy, and validity of the recording during the interview are given to the participants to review the authenticity of work (Morse, Barret, Mayan, Olson, & Spiers, 2002; Rager, 2005). The member checking process, as a result, served to decrease the incorrect interpretation of data by having the participants analyze and comment on the findings at the beginning and end of the data collection step.

Although the scope of this research is exclusive to the Washington, DC Metropolitan area, and within the IT security industry, the same participant screening criteria and interview questions can be utilized to serve as a research template for studies involving other geographies and industries. Transferability is a criterion by which research steps and findings could apply to another situation different from the original research environment (Hakinson, 2012; Malik & Kabiraj, 2011). The results from this study were derived solely from the responses of the participants to ensure confirmability of data. Confirmability is a process by which analysis is performed exclusively on the

data that is obtained from participant experiences, thereby remaining objective (Shenton, 2004). When the interview responses were being analyzed, the emerging themes from the participant responses were the focal point setting aside any personal opinions.

Transition and Summary

The purpose of Section 2 was for me to present a detailed description of the leadership matrix within the IA industry and to define the sample size needed for testing the problem statement from the information technology security professionals' point of view. Section 2 included details on the ethical research protocol needed to effectively conduct this study, the participant selection process, and the study population selection criteria and demographics. In this section, I also discussed the rationale of the research design presented by analyzing the purpose statement, participants, research method and design, population and sampling, data collection methods, data analysis technique, and reliability and validity. In Section 3, the details will include the results of the study and analysis encompassing the overview of the study, presentation of the findings, applications to professional practice, implications for social change, recommendation for action and further study, reflections, and study conclusions.

Section 3: Application to Professional Practice and Implications for Change

This section includes the findings of the data collected from project managers and subject matter experts in the IT consulting organizations within the Washington, DC metropolitan area. The participants related their views of the factors that IA leaders need to improve information technology project team performance. The van Kaam method is a data analysis technique including: (a) bracketing, (b) horizontalization, (c) categorization, (d) description of textual and structural experiences, and (e) determining the meanings that best describe the lived experiences (Moutakas, 1994). This section also includes the overview of study, presentation of findings, applications to professional practice, implications for social change, recommendations for action and further study, reflections, and conclusion.

Overview of Study

The purpose of this qualitative phenomenology study was to explore the strategies that information technology leaders needed to improve information assurance project team performance. I was able to gain in depth opinions from 10 project managers, and 10 subject matter experts as these IA professionals described experiences and observation of the phenomenon via one-on-one interviews. It is imperative to identify the factors that contribute to IA project team success so that leaders could know the failures to avoid (Didraga, 2013; Nagadevara, 2012).

I have over 15 years' experience as an IA professional within the Washington, DC metropolitan area; I had access to professionals that work in the IA field with multiple IT consulting organizations. The recruiting process commenced by emailing 20 participants

invitations to participate in my study. The first group of participants interested in participating requested a meeting for a briefing on the details of the study. Once the participants met the eligibility criteria to participate in the study, a copy of their resumes were requested to confirm relevant background and suitability. During the interview sessions, eleven semistructured, open-ended interview questions, based on the leadership structure of IT security teams, were asked of each participant.

Presentation of Findings

The participants responded to five screening questions to determine eligibility to participate in the study (Appendix D). Participants provided: (a) years of experience within the IA industry, (b) years served in management role, (c) the number of IT consulting organizations worked for within the Washington, DC Metropolitan area, (d) the number of contracts/teams worked on, and (e) the number of people managed. Of the 20 participants, the results indicated that average years of experience within the IT industry was 15 years, ranging from 7 years (PM-5 & SME-3) to 35 years (PM-6 & SME-9). Management experience ranged from 8 participants who had 3 years of leadership experience (PM-5, PM-10, SME-1, SME-2, SME-3, SME-4, SME-5, & SME-6) to two participants who had over 15 years of leadership experience (PM-3 & SME-9). Some participants (75% or 15) worked with over 8 IT consulting organizations, while the other participants (25% or 5) worked with over 12 different IT consulting agencies. In responding to the total number of IT security contracts/teams worked on, the average number was 10 contracts/teams, ranging from 3 contracts/teams (PM-7 & PM-9) to 20 contracts/teams (SME-9). Fifty-five percent of participants stated that they managed a

team ranging from 7-10 people while the other 45% managed a team ranging from 12-22 people.

The central research question was: What strategies do information technology leaders need in order to improve information technology project team performance? After the interviews were transcribed, all participants received copies requesting verification to ensure accuracy. It is important to have study participants confirm the interview scripts as the process helps to ensure the credibility and dependability of the results (Morse et al., 2002).

While analyzing the findings of the phenomenological based interviews, common themes emerged during the analysis of interview transcription. The themes were further developed based on the frequency of commonly occurring terms, and recognizing subtle connections (Bartkowiak, 2012; Moustakas, 1994; Purucker et al., 2012), from the perspective of subject matter experts and project managers. The tables depicted at the bottom of each theme were then constructed based on a process of data reduction, from detected patterns, and commonly occurring phrases. Those themes included: (a) communication and teamwork, (b) leadership need more technical knowledge, (c) continuous training, (d) hire skilled resources, (e) project managers need to know the IA field (f) subject matter experts need people skills, and (g) business minded professionals should lead IA teams. The following sections present the summaries of the themes.

Theme 1: Communication and Teamwork

Theme 1 was developed from responses to Interview Questions 1, and 4 in which the participants were asked to explain what components contributed to the success of IA

teams and the performance structure. Three main components common among participant responses were: communication and teamwork, strong team leader, and qualified staff. Human interactions are never crisp, complicated, and are easily nor well defined; however, matter more than any other aspect of information technology and matter the most to the success of IA projects (Bartelt & Dennis, 2014; Miller, 2013; Sarker, Ahuja, Sarker, & Kirkeby, 2011).

Based on the number of participants and the number of times the participants referred to a specific component, participants mentioned communication, and teamwork is what contributed the most to the success of information assurance teams. Of the 20 participants, 12 (60%) explained that effective collaboration on the tasks were important (see Table 1). As SME-9 noted, "If there is a lack of communication, and team work, the correct technical solution will not be addressed thereby disappointing the client."

Five participants stated that communication was the primary tool to an effective team composition (PM-6, SME-3, SME-5, SME-8, and SME-10). PM-1 suggested that once a task is handed out, it is imperative that the teams work together to get a resolve for such tasks. SME-4 contended that "85% of the work could be successful if team members have the characteristics to want to work together."

The ability of organizations to build high performance teams, and be skilled at teamwork is a major component in determining the future success or failure of organizations (Fisher, 2014; Kliegl & Weaver, 2014). Teamwork can significantly improve efficiency, job satisfaction, communications, unity of purpose, quality, and loyalty to the organization (Warrick, 2014). Though communication and teamwork were

the primary responses to Questions 1, and 4, two other factors that prominently figured in views included strong team leader, and qualified staff.

Organizations are beginning to recognize that the top-performing leader provides a pivotal role within the organization to ensure that the goals are met successfully (Redick, Reyna, Schaffer, & Toomey, 2014). Team leaders must have a vision, and a plan for the team to succeed (PM-5, SME-6, and SME-10). Paired with having strong team leaders, SME-7 contended "Such leaders need to attain upper management's buy-in of security's mission." SME-2 supported this view:

> Leaders that understand how to manage people, projects and have some sort of subject matter knowledge is vital to the success of IA teams. There have been some projects of which I had either straight manager or straight technical person, never a mix. On those projects, tasks took forever to complete and people often left the organization and project due to lack of focus.

Team leadership is becoming more valuable in the workplace, and it is important to understand how to recognize strong team leadership and develop new leaders to lead teams that contributes to an organization's continued success (Pearce, Wassenaar, & Manz, 2014).

Projects must be staffed by qualified and trained professionals in order for team deliverables to be credible, and noteworthy (Paton, 2014). The success of IA project teams is dependent on hiring qualified staff to get the job done (PM-3, PM-7, & PM-9). As SME-2 noted, "Everybody on a team is going to have different variant skill level which is great for a team, not only does it build team comradery, it presents the

opportunity for seasoned vets to teach the younger professionals." PM-4 explained that a working manager contributes to the success of IA teams by having a vision for the team, "I have always respected the more of a working manger because they shared in the work load and also knew the work rather than somebody in management that sat on an ivory tower just managing projects."

Table 1

Communication and Teamwork

Commonly occurring phrases	No. of participants who shared views	% of participants who shared views
Effective collaboration on tasks	3	15%
Communication is an effective tool	6	30%
Teams that work together	3	15%
Vision and a plan	5	25%
Leaders need to have a plan	2	10%

Theme 2: Leadership Needs More Technical Knowledge

Theme 2 was developed from responses to Interview Questions 2, and 3 in which the participants were asked to expound on their observation of the leadership strategies of the IA team performance and which of the leadership strategies were successful. Fourteen participants (70%) observed that the leadership did not have the level of technical expertise needed to run IA based projects effectively (see Table 2). Alignment between information technology strategy, and leadership strategy is one of the most important factors for managing superior IT teams, and is a key source of value creation

(Cecez-Kecmanovic, Kautz, & Abrahall, 2014; Wagner, Beimborn, & Weitzel, 2014). PM-3 contended:

> A lot of the management is unqualified to do the job that they are doing. Management does not know the difference between cyber security, information assurance or security engineering; they have no idea between the concepts or the differences between the three. Therefore, how are they going to guide you to the correct path if they do not understand what they are leading on?

PM-5 explained, "Leadership is not up to date with technology. They have a lot of good institutional knowledge most times, so they know what it takes to run a successful IT program." Poor requirements planning, inexperience in leading people and lack of subject matter knowledge at hand contributes to hampering the decision making of leadership (PM-1, PM-8, PM-10, SME-3, & SME-7).

Though 70% of the participants observed that leadership lacked the level of technical expertise needed to adequately lead IA based projects, six participants (30%) noted that the leadership strategy that was successful entailed leaders having the ability to maintain a high level view of tasks. PM-9 contended, "They can see the bigger picture versus when in IT, you are focused on the day to day task and getting the end result." SME-8 stated, "Leadership have an understanding of business development at a higher level, which is great; It gives them a little more push to implement policy more effectively especially if they understand how the organization is set up." Four participants (PM-7, SME-1, SME-4, & SME-5) stated that leadership recognizes the need for security professionals, thereby ensuring that IA based projects are adequately funded.

What leads to the successful execution of projects is when management strategically knows what direction the project is heading through keeping up with project progress (Drnevich & Croson, 2013).

Table 2

Leadership Needs More Technical Knowledge

Commonly occurring phrases	No. of participants who shared views	% of participants who shared views
Leadership not up to date with technology	7	35%
Management does not know the difference	2	10%
Lack of subject matter knowledge	5	25%
Maintain high level view on tasks	6	30%

Theme 3: Continuous Training

Theme 3 was developed from responses to Interview Question 5 in which the participants were asked to identify which component of the IA team structure can be improved. Of the 20 participants, 9 (45%) spoke about the need for training (see Table 3). While some participants spoke on continuous training as a means to continuously seek certifications, webinars, seminars, and classroom training (PM-8, PM-10, and SME-10), other participants also mentioned internal team training that focuses on the specific job tasks (PM-2, PM-5, PM-9, SME-2, SME-3, & SME-5). PM-5 stated, "…team members need to know how to do other tasks versus just focusing on their specific knowledge. For example, pen testers are great; however, they are often focused on just

pen testing as opposed to learning about other various IA techniques and policy that are also important to their testing." PM-9 further supported this:

> It would be beneficial if both sets of staff knew what each other did. For instance, the technical staff should know what the compliance staff does and vice versa. Therefore, 75% of what each staff do should be applied to their specified skills while the other 25% should be applied to attaining knowledge of what their counterparts do."

A cross trained team is one of the main sources of a successful work environment and requirements output (Bokhorst, 2011; Olivella, Corominas, & Pastor, 2013). SME-2 noted:

> I am a big fan of training, but not spending lots of money to get that accomplished. I feel like most of the training should be hands-on. Therefore, the senior level should teach the middle level, while the middle level teaches the junior level staff so that everybody is continuously learning and not necessarily just managing. It is important to understand the dynamics of your team.

In referencing external training, SME-10 contended, "IA professionals need to continually get IT certifications as a means of continuous training. Technology changes so much that it is imperative for IA professionals to stay on top of training to adapt to such technologies." Continuous training positively impacts both organizations and professionals through increased organizational commitment, job satisfaction, and job productivity; and should be adopted as part of business operations (Ellis & Kuznia, 2014; McEdwards, 2014).

Five participants (25%) stated that in addition to training, the IA team structure could be improved through defining the team leadership. PM-3 stated, "…I feel like there are too many managers and not enough worker bees. Everyone wants to give the direction, but no one wants to do the work and it suffers. There is way too much management and too many people impressed with the title than just doing a good job and getting it done." PM-6 further noted that "leaders need to evaluate the experience level of their team members. Each team needs to have an equal amount of professionals such as seniors, middle, and junior staff. It is not fair to only want to hire seniors, as middle and junior staff can bring other perspective that a seasoned employee may not have seen." In an industry where technology is ever changing, the quality of human capital is a contributor for firm profitability, and sustained growth (Mehra, Langer, Bapna, & Gopal, 2014).

Table 3

Continuous Training

Commonly occurring phrases	No. of participants who shared views	% of participants who shared views
Certifications, seminars, and classroom training	3	15%
Cross team training on day to day work	4	20%
Task based/hands-on training	2	10%
Define team leadership	5	25%

Theme 4: Hire Skilled Resources

Theme 4 was developed from responses to Interview Question 6 in which the participants were asked to explain what the barriers were to improving the IA project team performance and why. The two main points that were common among the responses from the participants included: lack of skilled resources, and lack of funding. Participants notably mentioned lack of skilled resources as the main barrier in improving the IA project team performance. According to Miller (2013), the success or failure of IA projects involve the skill level of the people, their ability to focus on the project, openness to change, and the overall team dynamics. Of the 20 participants, 14 (70%) noticed that IA leadership needed to hire more experienced resources (see Table 4). SME-1 stated, "I would definitely say that a barrier to improving the IA team structure include contract funding. Oftentimes, IT security teams are staffed via the professional's salary versus knowledge which could negatively affect the outcome of a project." SME-3 added to this statement by noting that in trying to maintain budget costs, management often resort to hiring junior and mid-level staff. In doing so, the expertise is lacking which negatively affects the project delivery. PM-9 contended, "…the barriers to improving the IA team mainly falls on not having enough skilled resources. As one task is completed, another task is given which resembles being stuck on a wheel that is never ending. If we had enough skilled staff, then time can be spent adequately finishing tasks and learning the counterparts' work as well."

One participant (SME-8) cited a couple of reasons that contributed to the barrier of IA teams:

> Most people that do IA are techies. We need people with business rational and business functionality to lead the team. IA teams need to adopt business functionality. Since IT systems support business functions, IT systems do not necessarily stand by itself. Somebody needs to provide adequate guidance to the customer such as the work flow of the IT system. An IA techie will not be able to tell the customer the details of data but will be limited to technical descriptions only. Typically, most customers just want to meet their goal and are not necessarily concerned about the specific descriptions of the technical tasks.

Four participants (20%) stated that lack of funding is adding to the barrier of improving the IA teams (PM-4, PM-7, SME-2, and SME-9). PM-7 noted "…when it comes to funding, they are focused on one or two areas. Leadership needs to realize that IA should be first on the list verses an ad hoc request. In retrospect, security should be #1 because it deals with securing the various systems, and applications that support the organization as a whole. Unfortunately, leadership does not see it that way." Information technology firms are having trouble hiring top-notch talent because government funding limits how many people the organization can hire due to overhead operational costs (Cecez-Kecmanovic et al., 2014; Jiang, Chang, Chen, Wang, & Klein, 2014; Tiwana, Konssynski, & Venkatraman, 2013).

SME-2 contended:

> You need to have the leadership at the top level to buy-in to the various tasks that you will be doing. This is because they are the ones giving out the money, if you do not have a good relationship with that top manager, you will not get the

funding and they will not understand the necessity of training. Since top leaders do not know the intricate details of IA, it is easy for them to dismiss the importance of the needed training for IA staff. Top level management has a preconceived notion that it is the IA professional's job to streamline the tasks for its staff.

Table 4

Hire Skilled Resources

Commonly occurring phrases	No. of participants who shared views	% of participants who shared views
Staffed via salary versus knowledge	2	10%
Trying to maintain budget cost	2	10%
Not having enough skilled professionals	5	25%
Lack of skilled resources	3	15%
Lack of funding	2	10%

Theme 5: Project Managers Need to Know the IA Field

Theme 5 was developed from responses to Interview Questions 7, and 9. The participants were asked to describe how project managers have contributed, or failed in leading IA teams. Sixteen participants (80%) stated that project managers have failed to contribute to the achievement of IA teams because the knowledge about the information assurance field is lacking (see Table 5). PM-10 stated:

A good project manager understands the people, limited resources, limited tools, as well as the technology itself. Then there are PMs that do not understand the

> technology or tools; and because they don't understand, they over commit the tasks of the technical staff. The engineers are then lost because there is no direction as well as not knowing how to achieve what the PM has already overcommitted. An effective project manager should know the subject matter knowledge at hand to adequately assist their team members in various work duties.

Perhaps if project managers learn to be receptive to new ideas and educate themselves about the IT field, their understanding will be enhanced and much of their efforts can be focused on proper project estimation and planning (Bohm, 2013; Jiang et al., 2014). PM-9 was very thorough in their assessment of project managers:

> I do not think they are out to watch us fail. They try to do the best they can by trying to hire the right people/skill set for the job through asking the right questions during an interview. However, most of them do not necessarily do a good job. They are doing as much as they possibly can but they also need to know a little of the IA subject matter at hand so that they know the hoops we have to jump through in our daily tasks. If PMs understood some of the aspects of IA, then they can successfully hire professionals who have the necessary skill set.

Eight participants (40%) stated that project managers are excellent at organizing meetings, setting priorities, and deadlines to meet a common goal; however, most PMs do not know the subject matter at hand which could cause them to set unrealistic timelines for tasks (PM-1, PM-3, PM-7, SME-1, SME-3, SME-4, SME-9, &

SME-10). Methodical and technical skills are vital for the successful execution of projects (Dube, 2014; Wagner et al., 2014). SME-2 noted:

> PMs have seriously contributed to IA projects because as an SME, I do not have time to communicate with the customer; I am more concerned with getting my work done. Therefore, the PM has contributed in that regards. They are talented in communicating the overall needs of the project as appropriate. However, PMs need to have a little technical knowledge to be able to fully execute decisions that make sense.

When asked how the role of project managers is perceived in leading IA teams, most participants (14, or 70%) noted that PMs should lead IA teams because they are the bridge between the technical team and the customer for continuous reporting. SME-10 stated:

> I think PMs should lead IA teams because it is a project that needs administrative attention. After all, the customer of whom you are working for expect you to know the schedules, and budgets. It is impossible to be doing your daily tasks and not be aware of the overall impact of the task at hand. For example, since new technologies are constantly emerging, you need to know when you can schedule a certain task, how much the new technology is going to cost, and how many people you can hire. This is what PMs are responsible for, to understand the environment, see how they can integrate technologies, lay out the schedule, lay out the budget, and get the upper management's buy-in to implement such solutions.

PM-2 noted, "They are the leader, manager, mentor, and communicator. They are the vehicle between the team and the customer for the transmission of information. Essentially, if there is something the team needs, they could coordinate with the customer to get it and vice versa. The PMs are the ultimate intermediary for both sides." SME-6 contended that PMs should work "hand in hand with the SMEs so that they can understand what it takes to perform IA task" while PM-8 stated, "they add structure to the deliverable of work which is imperative for our customers." PM-9 further noted that "they are more of an outsider. When I think of project managers, I think of the Microsoft project application and maintaining a project plan. They make sure you stay on task."

Table 5

Project Managers Need to Know the IA Field

Commonly occurring phrases	No. of participants who shared views	% of participants who shared views
PMs do not know the IA industry	1	5%
PMs do not understand the technology or tools	9	45%
PMs need to know a little of the IA subject matter	2	10%
Lack of knowledge causes PMs to set unrealistic timelines	4	20%

Theme 6: Subject Matter Experts Need People Skills

Theme 6 was developed from responses to Interview Questions 8, and 10 in which the participants were asked to share if subject matter experts have contributed or failed to contribute to the achievement of IA teams, and what their role should be in

leading IA teams. Participants' responses varied markedly, from subject matter experts are difficult to work with (9, or 45%), are knowledgeable and have what it takes to get the job done (5, or 25%) to SMEs do not know the business aspect of technology (3, or 15%)(see Table 6). Though SMEs play a critical role in the success of teams by providing expertise and guidance, there may be difficulty when a professional who lacks expertise tries to offer opinions (Sohmen, 2013). Subject matter experts are not adversaries; rather, are instrumental partners in the organization's success (Warrick, 2014).

PM-6 stated that "subject matter experts failed to contribute to the achievement of IA teams because they think they know it all and it makes it hard to work with them." PM-7 supported this statement by contending that "often, SMEs do not have the communication skills that are often needed to integrate a team. SMEs tend to do things their way, without input from others because they know how to deal with various technologies specifically. Therefore, the need to accept input from other team members and understand how a team works overall is necessary." SME-2 noted, "SMEs tend not to listen to the ideas or viewpoints of others. Within the IA industry, SMEs need to learn to listen to other ideas. Trying to do everything your way is never going to work. Therefore, it is important to listen, work, and collaborate with the rest of the team to get the work done." Five participants observed that SMEs bring a plethora of experience and wear more than one hat; however, they do not communicate their strategies effectively (PM-2, PM-4, PM-9, SME-5, & SME-7). SMEs play a key role in that their input is

crucial to the development of quality deliverables; therefore, teamwork is a critical process effective for team functioning (Fisher, 2014).

Three participants noted that SMEs do not know how to manage schedules, and set priorities when it comes to setting team deadlines (PM-1, SME-8, & SME-9). SME-9 stated, "SME's are the most talented yet most difficult people to work with due to them not really paying attention to budget limitation, but rather, completion of the work itself." PM-1 noted, "SMEs are very knowledgeable at what they do, and often lead specific tasks at hand in the right direction. However, they do not necessarily know how to set priorities, and deadlines which could be detrimental to the outcome of any IA based projects." Five participants mentioned that SMEs are knowledgeable, and have what it takes to get the job done (PM-8, PM-10, SME-3, SME-4, & SME-10). SME-4 opined that SMEs know the technical tasks deeply, and can solve the most complex of problems. PM-10 felt that "SMEs have the expertise, and background to make sure that a specific task is less of an obstacle, and that the project duration shorter because they know what they are doing versus someone who does not know what they are doing." SME-3 stated "SME's are successful because they are intimate with the specifics of each project and can manage them accurately.

A basic challenge in the flawless functioning of information assurance teams is the need to incorporate individual contributions through the interaction of team members, which may lead to producing the desired outcome (Gallie, Zhou, Felstead, & Green, 2012; Pearce et al., 2014). When asked what should be the role of subject matter experts in leading IA teams, participants' responses included, SME's should be a team member

versus a leader as their main focus is to technically guide each project (10, or 50%). SME-4 contended "…SMEs should just be part of the team, and when other team members have questions, they are to have the answers." PM-6 further agreed by stating that SMEs, though good in their specific specialty, are not necessarily good in leading people. PM-10 noted, "SMEs are innovators, they know the technologies that work, and they should assist in implementing technologies in a timely, efficient, and proper manner."

Subject matter experts should lead IA teams because they have the knowledge of what the needs are and the requirements it takes to make the project successful (5, or 25%). PM-9 explained, "They pay attention to the schedule but at the same time, they are both leaders, and could be a worker bee. Not only are they managing the schedule, but they can also be hands-on in dealing with the tasks at hand; whereas a project manager is lost." SME-6 supported this statement, "To me, they would be a better manager because a real SME should have the knowledge of what the needs are and what the requirements are to make the project successful." SME-3 contended that SMEs should lead IA teams because the knowledge of IT security tasks, how it should work, and how to get it to work is apparent.

Table 6

Subject Matter Experts Need People Skills

Commonly occurring phrases	No. of participants who shared views	% of participants who shared views
SMEs think they know it all	4	20%
SMEs tend to do things their way	2	10%

SMEs do not listen to the viewpoints of others	3	15%
SMEs do not communicate strategies effectively	5	25%
SMEs do not pay attention to budget limitations	3	15%

Theme 7: Business Minded Professionals Should Lead IA Teams

Theme 7 was developed from responses to Interview Question 11 in which the participants were asked if there were any additional information they would like to discuss that were not part of the interview questions. It was quite a surprise to discover the last theme for this research study. All the participants gave their opinions as to who should be the ultimate authority in leading IA teams. The main theme detected among participant responses is, business minded professionals should lead IA teams. Of the 20 participants, 9 (45%) commented that project managers should lead IA teams, 9 (45%) noted that IA teams should be led by a professional who has a hybrid of both project management, and subject matter expert skills, while only 2 (10%) stated that subject matter experts should lead IA teams(see Table 7). A leader that promotes interaction amongst their team members understand the mechanism that unique contributions such as task knowledge, diverse team member talents, and personal dispositions translate into coordinated efforts (Warrick, 2014).

A project manager is a better choice in allocating leadership for the IA team because when leading the IA mission, SMEs only have the knowledge in one specific area; PMs are typically better-rounded (PM-7, PM-8, SME-1, SME-4, & SME-7). Being

a project manager is not only about managing objectives, it is about managing the professionals assigned to the team; however, chances of success will be limited if the SME assigned to the team do not understand the mission and vision of the organization (Bohm, 2013; Dube, 2014; Jiang et al., 2014). PM-2 commented:

> The role of the IA team leader should essentially be a project manager. The people that lead those teams should be people that have more of a global look at what is going on in the IA sector. They may or may not be a true project manager, but it takes people that are organized, communicate, mentor, lead, possess good customer presence to represent the company, and can also report back to the organization any major issues going on in a professional manner. True SMEs are very focused on specific tasks, and generally do not want to step up to the leadership role.

SME-2 contended, "…I do not mind reporting to the PM, but I would prefer to lead my own task. Every SME wants to lead their own task and report on such tasks as well. There are too many aspects of IA for an SME to lead a team. However, if the SME reports to the PM, then the collaboration could work." PM-5 stated, "I think the PM should lead IT security teams and I feel that way because they understand the timeline. SMEs are great; however, they are wired to focus on their subject versus focusing on the whole picture of IA. PMs look at a project from start to finish, and know the process of getting each milestone completed."

In establishing an effective working relationship with the business side of IA, the security professional needs a combination of interpersonal skills, and technical

knowledge (Redick et al., 2014; Sohem, 2013; Tiwana et al., 2013). The best scenario in choosing leadership of IA teams should be a professional who has a hybrid of both project management, and subject matter experience (PM-4, PM-6, PM-10, & SME-8). PM-9 commented:

> I think it should be someone who has both sets of skills because both sides have their own level of expertise. If you can find a hybrid person who has both the project management skills, and a high level understanding of the subject matter at hand, they will make the IA team more effective, and they will understand the various challenges of the IA team.

SME-10 further supported this by stating "…if the SME has a project management background, then they can ultimately save the organization in regards to budget. An SME with a PM background will be ideal." PM-7 noted, "SMEs are typically the engineers of which are typically more hands-on. The leader of an IA team is not to be too hands-on to allow teams to run accordingly. In my opinion, if there is an SME out there who has strengths in administratively running a team; that should solve the problem."

Table 7

Business Minded Professionals Should Lead IA Teams

Commonly occurring phrases	No. of participants who shared views	% of participants who shared views
Must be able to manage people and objectives	2	10%
SME and PM should collaborate	2	10%
A hybrid of both PM & SME	9	45%

SME with a PM Background	2	10%
PMs have more of a project's global view	3	15%
SME has the knowledge to lead teams	2	10%

Ties to Conceptual Framework

The situational leadership theory is the conceptual framework that underpinned this study. The situational leadership centers on two main types of leadership styles including the leader directive, in which a leader engages in encouragement, participates in two way communication, and facilitates behaviors; and the relationship behavior, in which the leader defines various roles such as the who, where, what, and when of assignment specifics (Germain, 2012; Ramkissoon, 2013). In assessing the themes derived from participant interviews, it was evident that the focus on the style, efficacy, and qualifications of the leadership of IA teams needs further improvement. IA based projects are failing due to leadership qualifications and the organizations that governs these IA teams are suffering as well (Wagner et al., 2014). The results of this represent two different groups of IT professionals within the IA industry to include, subject matter experts, and project managers who experienced, and witnessed the success, and failure factors of IA projects. Ninety percent of the participants had strong opinions on how failed projects were preventable, while other participants recognized the components that contributed to successful projects. As with 85% of the participants, SME-5 in particular

noted that ultimately, leadership needs to understand the roles, and responsibilities of the IA professional, and understand the type of work that goes into the product.

Ties to the Existing Literature on Business Practice

Assessing and recognizing different forms of leadership styles are very common in research. There are various views expressed in literature that have documented the pros, and cons of a specific type of leadership strategy (Bhatti et al., 2012; Hanisch & Wald, 2012; Lewin et al., 1939; Parris & Peachy, 2013). The contingency leadership style represents the building of interpersonal relationships within the team, while fostering a team structure to meet strategic objectives (Cameron, 2011; Freeman & Auster, 2011), and the trait leadership style is about having innate industry knowledge (Bhatti et al., 2012; Germain, 2012). The themes derived from this study including: (a) communication and teamwork, (b) leadership need more technical knowledge, (c) continuous training, (d) hire skilled resources, (e) project managers need to know the IA field (f) subject matter experts need people skills, and (g) business minded professionals should lead IA teams, seem congruent with the major consensus views in existing literature, but could also add to the literature by suggesting an alternative to evaluating the leadership strategies, and styles of IA teams. Since the IA industry is fairly new (Gordon et al., 2011), all components including the leadership aspects are still being developed, tested, and perfected. The doctoral study findings may therefore, extend beyond the generic different types of leadership styles, and provide strategies for the leadership to consider in improving project team performance. Considering that the doctoral findings are new, and not tested, it is the opinion that these will be effective

since derived from the views of 20 IA professionals with variant skill levels who stated similar outcomes. The results offer more than insight, and present tangible examples that could be beneficial to the IA industry.

Application to Professional Practice

The purpose of this qualitative phenomenology study was to explore the strategies that information technology leaders need to improve information assurance project team performance. The literature review included a critical analysis on topics from leading technical teams, conflicts between technology, and management, to success, and failure factors of IT projects, and variant leadership theories. The data collected from 20 IA professionals morphed into themes after analysis, and provided perspectives into the factors that contributed to failed IT projects, and suggestions that could contribute to successful IA leadership strategies in the Washington, DC Metropolitan area. Those themes included: (a) communication and teamwork, (b) leadership need more technical knowledge, (c) continuous training, (d) hire skilled resources, (e) project managers need to know the IA field (f) subject matter experts need people skills, and (g) business minded professionals should lead IA teams. The themes may be helpful to leadership as these highlight specific areas leadership need to implement for managing successful IA teams. The findings are relevant to the improved business practice because of the guidelines that emerge, which were perhaps not initially considered when the formation of IA teams took place.

In contemporary settings, it is normal for project managers to give teams specific tasks and timeline to complete without discussions as to the strategy needed to deliver

them adequately (Basten et al., 2011; Narayanaswamy et al., 2013). Subject matter experts often have a deep knowledge in functional areas; however, often fail to take the time to collaborate with others (Bradshaw et al., 2013; Sohmen, 2013). Hahn et al. (2012) noted that often times, leadership gave tasks, walked away, and came back needing the results of such tasks without any form of collaboration. The strategies that addressed these problems are, communication and teamwork, continuous training, and leadership need more technical knowledge. Communication and teamwork were skills not presented as important aspects of IA teams, but the participants of this study thought otherwise.

The leadership of IA teams are hired based on the administration of teams in setting priorities, and meeting deadlines, not necessarily on the knowledge of the subject matter at hand (Chaudhuri et al., 2011; Hui et al., 2012). The themes that addressed this problem are leadership needs more technical knowledge and project managers need to know the IA field. Seventy percent of participants mentioned that some knowledge of the IA field is needed for the manager to effectively lead the team. Assumptions were communicated to the customer when leaders did not know the specific workload for tasks (Litwin, 2011; Voegtlin et al., 2011). This led to the late submissions of deliverables, did not meet stated objectives, and required material rework (Wagner et al., 2014). Respectively, if the leadership had some knowledge of the IA field, 80% of the participants noted that it may have been easier for them to navigate the workload.

Oftentimes, resources are hired based on cost versus skill level (Jiang et al., 2014; Teasley et al., 2012; Seo et al., 2011). Upon initial staff recruitment, the individual can

work in the same position for more than three years without being pushed to pursue role based training. The strategies that addressed these problems include hiring skilled resources, and continuous training. IA is an industry in which the technology, and its standards are continuously changing (Mehra et al., 2014; Miller, 2013). It is imperative for leadership to hire the right person for the job based on skillset. Once hired, 45% of the participants spoke about the need for professionals to engage in continuous training. It is apparent that a professional hired based on skillset can lose prominent skills if the knowledge base is not continuously polished.

IA teams are often managed by PMs and seldom, SMEs (Floyd et al., 2013). It has been shown that PMs lack subject matter expertise, while SMEs lack management expertise (Basten et al., 2011; Iivonen, 2013). The strategy that addressed this problem is that business minded professionals should lead IA teams. With 8 participants noting that the leadership of IA teams should be a hybrid of project manager, and subject matter expertise, one may reasonably assume that the leadership of the IA industry should start shifting the thinking to a combination of both. Perhaps this new outcome could possibly be effective.

Implications for Social Change

Failed IT projects are a result of poor estimation, unclear project definition, lack of governance, cost overruns, and poor implementation standards (Cecez-Kecmanovic et al., 2014; Porter et al., 2011; Vintila & Gherghina, 2012; Williams and Williams, 2011). Not only does a failed project reflect poorly on an organization, it can have a negative effect on the professionals that form such teams including, loss of job thereby

contributing to the unemployment rate. From the results of this study, pertinent themes emerged that could be useful in the formulation of strategies as to how to contribute to the success of IA projects to include: (a) communication and teamwork, (b) leadership need more technical knowledge, (c) continuous training, (d) hire skilled resources, (e) project managers need to know the IA field (f) subject matter experts need people skills, and (g) business minded professionals should lead IA teams. Implementation of these themes by the leadership in the IA industry could lead to an increase in successful projects within the IA industry. A successful IA industry is important to social change as it may present job security, and organizational stability all of which are important to the overall growth of the economy.

As more IA projects succeed, the progress can ultimately lead to long term projects, contribute to job security, and increase organizational success. The rewards of project success could have a direct bearing on the longevity and career of IA professionals. Leadership must understand that the efforts in forming and leading IA teams go beyond the IT projects itself; but also has a direct implication on IA professionals, and the organization's community as a whole. The study may serve as insight into the factors that could strengthen project success and make a contribution to positive social change as the careers, and job security of IT organizations and IA professionals' depends on successfully executed projects. If applied correctly, the discoveries from the study could not only enhance project success, but can also improve employment stability; thereby act as a contributor to social change.

Recommendations for Action

Leadership should understand the importance of communication, and teamwork when it comes to putting together deliverables within the IA team (Kliegl & Weaver, 2014; Warrick, 2014). With some literature existing on communication, and teamwork (Bartelt & Dennis, 2014; Miller, 2013; Sarker et al., 2011), those components are needed to deliver project deliverables on time, within budget, and in line with applicable standards, according to the study results. Specialized team training may be a benefit that organizations could offer to teach IA professionals how to work together and avoid communication breakdowns. Forty-five percent of participants contended that SMEs are difficult to work with because the skill of effectively communicating the execution of tasks to other team members are lacking. Sixty percent of participants noted that training therefore, can teach the effectiveness of communication, and perhaps turn into the teams putting together quality work. If an organization can provide training, this may address a component in IT professionals' careers, and thereby contribute to successful teams.

Leadership should understand that in order to be effective leaders, 80% of the participants mentioned that it is imperative to know the IA field. Organizations should send IA team management to various technical training courses that provide an overview of the IA field as a whole. According to the study results, 70% of the participants noted that project managers are leading the team blindly without specific knowledge of information assurance.

Leadership should hire skilled resources, and implement a rigorous continuous training program. Seventy percent of the study participants contended that hiring skilled resources and implementing a role-based continuous training program were important in

contributing to successful IA teams. In addition to the initial screening of professionals performed by technical recruiters, subject matter experts should participate in the interviewing process to confirm qualifications before hiring of staff. Though some organizations offer reimbursement for training, companies should also implement a role based training program in which all IA professionals are responsible, and must report to management on an annual basis courses that the individual took in relation to the job role. Organizations should set the standards of how many courses an IA professional must take yearly.

Leadership should make sure that the individuals chosen to manage IA teams are business minded professionals who have a hybrid of project management, and subject matter expertise. According to study results, 45% of the participants mentioned that, it is easier if the SME, and PM work together to meet a common goal. A formal cross training program would allow the management of IA teams to be well rounded and thereby, being more effective. If organizations do not provide this type of training, then both PMs and SMEs should seek external training individually to cross-train themselves. This will not only contribute to individual personal growth, but such a strategy will contribute to the individual PM, and SME professional growth as well.

According to my interview sessions, all of my participants shared similar views about the leadership strategies within the IA industry; as such, cited interest in finding out the results of my study. After study approval, I will send a copy to all participants. The results may encourage the participants to not only better themselves professionally, but also push them to aid organizations in implementing this study outcome to create better

IA leadership. It is also my hope that participants will give a copy of this study to the management respective organizations, so that it can serve as a blueprint to better leadership practices. The study, ultimately published in the ProQuest dissertation database will be accessible to students; Therefore, any IT professional looking to utilize my study as a reference, or guide for promoting strong leadership qualities within the IA industry can access the study. In the future, I plan to publish the study findings in research journals, and also present at leadership based conferences.

Recommendations for Further Study

The aim of this qualitative phenomenological study included a purposive sample of 20 IA professionals, 10 were subject matter experts, and the other 10 were project managers. The participants were recruited from information technology (IT) firms that perform IT security based projects for the government agencies in the Washington, District of Columbia (DC) metropolitan area within the states of District of Columbia, Maryland, and Virginia. The results indicated specific strategies that IA leadership, and IT consulting firms specializing in security based projects could utilize to improve project success. Those strategies included, communication and teamwork, leadership needs more technical knowledge, continuous training, hire skilled resources, project managers need to know the IA field, subject matter experts need people skills, and business minded professionals should lead IA teams. The recommendations for further research include using a different geographical region to determine if these strategies are similar to the study results. Since implementation of these strategies rely on the executive leadership that run these IT organizations, further research could study a group of IT organizations

who implement these strategies, and the IA professionals that work for them to see how effective the strategies are.

Reflections

With 15 years of experience in the information assurance field, I am considered a subject matter expert. As a professional who has worked on over 12 contracts, and on 13 different teams, I was often frustrated at the lack of knowledge the team leadership exhibited in leading those projects. This frustration was my driver in performing this study. With being an SME, my personal bias was that SMEs should lead IA teams because of the knowledge regarding specific tasks needed to complete a deliverable accurately and on time. To distance myself and reduce personal bias, I interviewed subject matter experts and project managers as these individuals are the key players in the leadership of IA teams. The participants answered the specific interview questions, and any additional questions were asked to seek clarification of responses.

When I began the research, it was my assumption that all the SMEs were going to discredit the PMs, and that all the PMs were going to discredit the SMEs. In the course of interviewing the participants, I found their responses to be enlightening, and objective. Despite being an SME or a PM, 80% of the responses were similar and both sides had the same outlook on the leadership strategies within the IA industry. Their openness to share their lived experiences with me assured me of their passion for the IA field, and their willingness to put favoritism aside to meet accomplishing a common goal—successful projects. Not only was I amazed by the responses, working with my participants enabled me to enjoy the interview process.

Summary and Study Conclusion

The strategies identified from the lived experiences, and perceptions of 20 IA professionals from IT consulting organizations within the Washington, DC Metropolitan area suggested that, increasing the IA project success rate was possible. The outcome supported the literature review, which documented the importance of communication and teamwork, continuous training, and that leadership needed more technical knowledge. The participant pool, drawn from a purposive sampling of subject matter experts, and project managers, met specific eligibility criteria that included, (a) a minimum of 7 years of experience, (b) located within the Washington DC metropolitan area, (c) served in a management role for a minimum of 3 years, (d) worked for more than two IT consulting organizations within the Washington, DC metropolitan area, (e) worked on a minimum of three contracts/teams, and (f) managed a team of over seven people. The participants ranged in the years of work experience, and leadership styles. To ensure multiple perspectives, the participants worked for various IT consulting firms and had the knowledge to respond to the questions confidently.

To maintain reliability and validity, the data collection process stayed consistent throughout the duration of the study. In a face to face interview format, the participants responded to 11 semistructured, open ended questions that inquired about the leadership structure of the IA industry. The interview questions were a sub-set of the research question which was: What strategies do information technology leaders need in order to improve information technology project team performance? The results of this

qualitative phenomenological study suggested possible success strategies the IA leadership could implement to contribute to successful IT projects.

There were seven themes that emerged as a result of participant responses. Those themes included: (a) communication and teamwork, (b) leadership need more technical knowledge, (c) continuous training, (d) hire skilled resources, (e) project managers need to know the IA field (f) subject matter experts need people skills, and (g) business minded professionals should lead IA teams. The strategies identified by participants are practicable by IA leadership seeking to improve the IA team structure and the process of completing deliverables. The strategies can also be a roadmap for training programs within the IT consulting organizations. The research may contribute to the body of knowledge because the findings may aid in the formulation of specific strategies IA leadership can incorporate to achieve project success. An increase in project success may foster employment stability, job security, satisfied IA employees, and organizational growth; which are important to the advancement of the IA industry and the economy. This research should be distributed to IA leadership pursuing project success, as well as IT consulting organizations who wish to benefit from a sustainable IA industry.

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Appendix A: Letter of Research Scope and Introduction

Dear <Participant>:

The purpose of this letter is to invite you to participate in a research study I am conducting. The title of my research is, Distinguishing Leadership of Information Assurance Teams. I am conducting this study as the final stage of my Doctor of Business Administration doctoral study through Walden University. I implore you to read this form carefully and feel free to ask any questions that you may have before acting on this invitation to participate in this study. My research supervisor's name is Dr. Lionel de Souza and you may ask any questions about my study or your rights as a participant by emailing the professor.

You have been selected to participate because of your expertise within the information assurance industry. You were also selected because you are at the management level, with more than seven years of IT security experience. The goal of this voluntary study is to obtain at least 20 respondents. As a researcher, I will be asking 11 documented open ended questions to explore your perceptions on the team and management matrix within the Information Assurance industry. This is a low risk study and no harm is anticipated to you for participating. If you choose to not participate at any time, there will be no penalties or harm on your end. The anticipated benefits of this study will be the improved efficiencies in managing the IT security teams.

I will be using interviews as the method of soliciting primary data and will be recording the interview responses to ensure that I capture your responses accurately. There will be no compensation for your participation and confidentiality will be strictly maintained by me, with all data being password protected, and under lock and key.

Procedures: Once you have volunteered to take part in this study, you will be asked to participate in an interview. A consent form must be signed and a copy of this document will be provided to you. The interview will require approximately 60 minutes to complete and will be recorded for accuracy. Conflicts of interest will be eliminated by confirming that there is no work or family relationship to myself. Strict confidentiality will be maintained regarding your participation and all responses provided. Please note that once the study is over, all data attained from this study will be kept for five years then will be destroyed according to Walden's strict standards.

Thank you and I look forward to your anticipated participation

Bamidele Bankole
Doctor of Business Administration

Appendix B: Consent Form

You are invited to take part in a research study of evaluating the management matrix of the Information Technology Security Team. The researcher is inviting information assurance professionals with over 7 years of experience and who have served in a management capacity, to be in the study. This form is part of a process called informed consent that allows you to understand this study before deciding on whether to take part.

This study is being conducted by a researcher named Bamidele Bankole, who is a doctoral student at Walden University. You may already know the researcher as an Information Assurance Manager, but this study is separate from that role.

Background Information:
The purpose of this study is to explore the effectiveness of the IT security team leadership structure.

Procedures:
If you agree to be in this study, you will be asked to:

- Participate in a face-to-face interview that will last 60 minutes
- All interviews will be recorded
- The researcher will be writing notes from interview responses
- Review results from interview and provide feedback for an additional 15 minutes

Here are some sample interview questions:

1. Taking into consideration your experiences in your present/post positions, please identify and explain which components contributes to the success of IT project teams?
2. Considering your experiences to date, what is your observation of the leadership strategies of IT project team performance?
3. What aspects of the leadership strategies within the information assurance industry do you feel are effective?

Voluntary Nature of the Study:
This study is voluntary. Everyone will respect your decision of whether or not you choose to be in the study. No one within the Information Assurance industry including myself will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind later. You may stop at any time.

Risks and Benefits of Being in the Study:
Being in this type of study involves some risk of the minor discomforts that can be encountered in daily life, such as fatigue, stress or becoming upset. Being in this study will not pose risk to your safety or wellbeing.

Potential Benefits
Failed IT security projects can have a devastating effect on personal lives. Evaluating the management matrix can decrease unemployment and employee high turnover rates for organizations. This study may contribute to social change if it positively impacts the life and career of the IA professionals.

Payment:
Your participation in this study is voluntary; therefore, no payments will be given.

Privacy:
Any information you provide will be kept confidential. The researcher will not use your personal information for any purposes outside of this research project. Also, the researcher will not include your name or anything else that could identify you in the study reports. Data will be kept secure by keeping paper documents under lock and key in a safe deposit box while the electronic copies of data will be guarded under a user name and password known only to me. Data will be kept for a period of 5 years, as required by the university.

Contacts and Questions:
You may ask any questions you have now. Or if you have questions later, you may contact the researcher. If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. She is the Walden University representative who can discuss this with you. Walden University's approval number for this study is 07-30-14-0283771 and it expires on July 29, 2015.

The researcher will give you a copy of this form to keep.

Statement of Consent:

I have read the above information and I feel I understand the study well enough to make a decision about my involvement. By signing below, I understand that I am agreeing to the terms described above.

Signature of Participant:

Printed Name of Participant:

Date of Consent:

Signature of Researcher:

Appendix C: Data Collection Instrument – Interview Guide

The interview questions are:

1. Taking into consideration your experiences in your present/post positions, please identify and explain which components contributes to the success of IT project teams?
2. Considering your experiences to date, what is your observation of the leadership strategies of IT project team performance?
3. What aspects of the leadership strategies within the information assurance industry do you feel are effective?
4. Please identify and explain which component(s) of the IT project team performance structure are successful?
5. Taking into consideration your experiences in your present/post positions, please identify and explain which component(s) of the IT project team performance structure may be improved?
6. In your opinion and based on your experience, what are the barriers or enablers to improving the IT project team performance and why?
7. Please share how you believe project managers have contributed or failed to contribute to the achievement of IT project teams?
8. Please share how you believe subject matter experts have contributed or failed to contribute to the achievement of IT project teams?
9. How do you perceive the role of project managers in leading IT project teams?
10. What do you believe should be the role of subject matter experts in leading IT

project teams and why?

11. What additional information would you like to discuss that we have not covered during this interview?

Appendix D: Screening and Eligibility Criteria Questionnaire

1	How many years of experience do you have within the information assurance industry?	
2	How many years have you served in a management role?	
3	How many IT consulting organizations have you worked within the Washington, DC metropolitan area?	
4	Have you worked on a minimum of three contracts and teams? Please specify.	
5	Have you managed a team of over seven people before? Please specify.	