



Exploring Strategic Choices in the Composition of Information Assurance Teams

Bamidele A. Bankole and Lionel de Souza
Walden University.

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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 research 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 research. 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 research results may help improve project success and contribute in some small way to the growth of the IA industry.

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Introduction

The Information Assurance Industry

The expectation of IT security professionals, within the information assurance industry, is to oversee the deployment and the effectiveness of the security measures. The focus of the information assurance (IA) industry hinges on administering security measures, aimed at maintaining the confidentiality, 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 in providing departments, and functions across an organization with private and confidential access to information (Ghezal, 2011).

As technology continuously evolves, the imperative may rest on leadership, and management teams to adapt to changing goals in meeting the goals of the information assurance (IA) industry in meeting the assigned security measures entrusted to maintain and achieve. The criticism often faced by the information technology security industry in hampering business strategy and curbing creativity, management, and forward thinking is well known (McFadzean, Ezingear, & Birchall, 2011). IT security teams often work to ensure the security of information systems, operations, and assets for the private and other sectors, and government agencies (Hong, 2013). The trend within the industry is typically for the project manager to be responsible for the overall management of an IT security team, from inception to delivery (Darrell, Baccarini, & Love, 2010).

The purpose of a recently conducted phenomenological research was to evaluate the effectiveness of the IT security team leadership structures. The data from the research may

offer 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 of the United States. The discoveries from the research offer a deeper understanding into the role of leadership in navigating and leading IT security teams.

Background of the Problem

The structure of an IT security team typically consists of a project manager, technical lead, subject matter expert, technical writer, senior and junior security analyst, respectively. The assigned project manager has the overall management responsibility of the project (Denning & Frailey, 2011). The project manager may not always have a background in IT security and manages often execute 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. A concern is that 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). The lack of balance between information and communication also often contribute to the IA industry failing to meet established goals (Bateman & Barry, 2012). 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, tasks, and tools in respect of business operations. Although, arguably 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

The success of IT projects is critical for organizational growth, but the success rate is historically low with failures costing billions of dollars annually (Tang & Zimmerman, 2013). Over 70% of information technology projects have 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 have often lead to poor requirements analysis (Miller, 2013; 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 lowered project success appeared to be an outcome of improperly constituted and structured IT teams (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 management guidance. The specific business problem is that information technology leaders often have limited strategies to improve information assurance project team performance.

Purpose Statement

The purpose of the qualitative, phenomenological research under taken, was to explore the strategies that information technology leaders needed to improve information technology project team performance. Qualitative research chosen for the research was appropriate for probing, and recording the lived experiences of information assurance professionals within the IT security industry. The research involved conducting interviews of 10 subject matter experts, and 10 project managers, representing a sample drawn from a population of 30 IT consulting organizations, located within the Washington, DC Metropolitan geographic area in the United States. The sample size for this research was thus comprised of 20 information assurance professionals from within the IT security industry. The research conformed to the generally accepted sample size range for a qualitative, phenomenological-based research of five to twenty-five participants, who experienced the common lived phenomenon (Alford, 2011; Hynes, 2012; Targari, 2012).

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 research 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).

In evaluating research methods, qualitative research seemed optimal for this research because the process is flexible, and evolves contextually in response to the lived realities encountered in a field setting (Alford, 2011; Moustakas, 1994; Targari, 2012). 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 premise endorsed by researchers, that phenomenology is an approach in which the researcher maintains a strong relation with the topic of inquiry (Davis, 2011) provide the reason for favoring this design.

Within the IT security team structure, there are several 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. The aim of the research included focusing on obtaining meaningful, deep, and explicit perceptions of how project managers and subject matter experts view the leadership strategy within the IA industry (Sinden et al., 2013).

Theoretical Underpinnings

The conceptual framework that underpinned this research was the situational leadership theory. The postulations of the situational leadership theory connote that for leader adaptability and flexibility to serve a team, and proposes that 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 maybe 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 have continually evolved, 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.

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 appeared logical, and critical for organizational survival (Ghezal, 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 was relevant to this research because the leadership qualities of IT security teams needed further assessment and study. This research 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.

Professional and Academic Literature Analyzed

In interest of brevity, limited theoretical viewpoints are analyzed herewith. The importance placed on current, 2015 practices in IT security stem from the 9/11/2001 attacks, as compared to pre-9/11 period, elevated the importance of the IA industry (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 has continued to play 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 have strived to align the actions of the end users with the desired security posture of management, and of the firm through persuasive communication. 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 in IA project have 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).

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). 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).

Leading Technical Teams

The focus of IT security has shifted from the physical security of computer systems to securing networks, and business information models (Sohmen, 2013). 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, Ornoy, & Keren, 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, 2013). 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, Zhang, Keil, & Chen, 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).

Data Collection and Analysis

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, served as the primary source of data collection. The aim included determining if subject matter experts or project managers should manage IT security teams. The knowledge and discoveries generated from the research on this theme, may make a worthy contribution to the existing body of knowledge on IT security management and leadership. The rationale, exploring the role leadership plays in failed IT projects appeared logical in view of the reinforcement of studies in this area.

Data Analysis

Qualitative research is dependent on the interpretive analysis of the collected data and the goal of this research was 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 research 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, Strunk, & Pickler, 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). The invocation of the van Kaam method served 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 data collection for this research included audio recording and subsequent transcription of interview responses. Thereafter using the features of the qualitative data analytical software NVivo facilitated the scrutinizing of the interview transcripts, and resulted in identifying key words and common themes that repeated amongst participant responses in the interviews. The grouping of thematic categories by assessing multiple comparisons between the data serves to glean deeper insight into a studied phenomenon and to generate more knowledge (Purucker et al., 2012), and was adopted for this research.

Presentation of Findings

The participants responded to screening questions to determine eligibility to participate in the study. 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 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) had experience serving over 8 consulting organizations in the IT domain, while the other participants (25% or 5) experience included at least 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 recorded and transcribed, all participants received copies requesting verification to ensure accuracy. Having research participants confirm the interview scripts helps to ensure the credibility and dependability of the results (Morse, Barrett, Mayan, Olson, & Spiers, 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 explained the components that contributed to the success of IA teams and the performance structure. Three main components common noted in 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 leadership, and qualified staff on a project team.

Organizations have often recognizes that the top-performing leader provide 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 who 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 From Analysis of Interview Transcripts	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 reflects the dominant views emerging from participants' responses to Interview Questions 2, and 3 in which the participants expounded on personal observations 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 are 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 From Analysis of Interview Transcripts	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 identified the component of the IA team structure which 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 From Analysis of Interview Transcripts	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%
Define team leadership	5	25%

Research Findings Evaluated in Light of Theory

The situational leadership theory was the conceptual framework that underpinned this research. 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 govern 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. Views expressed in literature cover 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 has represented 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 major themes derived from this research included: (a) communication and teamwork, (b) leadership need more technical knowledge, (c) continuous training, which seem congruent with the major consensus in views expressed in contemporary literature. The possible contribution to existing knowledge may lie in providing the thought and impetus for further research and connotations of alternatives to favored leadership strategies, and styles of IA teams. Since the IA industry is fairly new (Gordon et al., 2011), all leadership and team compositions of IA teams are still being developed, tested, and perfected. The research findings from this study may therefore, extend beyond the generic different types of leadership styles, and provide strategies for the leadership to consider in improving project team performance. The study results offer more than insight, and present tangible examples that could be beneficial to the IA industry.

Application to Professional Practice

The data collected from 20 IA professionals morphed into themes after analysis, and perspectives into the factors that have often contributed to failed IT projects. Qualitative study findings with small sizes are not generalizable to larger populations. The study findings however may contribute to successful IA leadership strategies in the Washington, DC Metropolitan area. Those themes emerging from this study were on the importance of: (a) communication and teamwork, (b) leadership need more technical knowledge, (c) continuous training. The findings may be of value to leadership as 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 typically during the formation of IA teams.

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 deep knowledge in functional areas; however, often fail to take the time to collaborate with others (Bradshaw, Cragg, P., & Pulakanam, 2013; Sohmen, 2013). Hahn, Bredille, Gyeung-Min, and Taloc (2012) noted that leadership in projects often display the tendency to provide project specifications and desired outcomes, then walk away and return to evaluate results, failing to engage and collaborate. The strategies that optimally addressed these problems as found from the research are, communication and teamwork, continuous training, and leadership need more technical knowledge. Communication and teamwork often receive less importance in formation of IT assurance teams, however the 20 IA professionals participating in this research thought otherwise.

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). The views on communication, and teamwork (Bartelt & Dennis, 2014; Miller, 2013; Sarker et al., 2011), emphasized more on the need to deliver project deliverables on time, within budget, and in line with applicable standards, perhaps ascribing lesser importance to team leadership and communication. Specialized team training may be a benefit that organizations could impart to IA professionals on collaboration and avoiding 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 the careers and aspirations of IT professionals may be advanced and served well, with successful teams a more assured outcome.

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. In this study, 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 research participants contended that hiring skilled resources and implementing a role-based continuous training program were important in contributing to successful IA teams. To supplement 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 research 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 personal external training. The initiative and drive for self-development will not only contribute to individual personal growth will likely contribute to the individual PM, and SME professional growth as well. All participants shared similar views about the leadership strategies within the IA industry; as such, cited interest in finding out the results of this research.

Recommendations for Further Research

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, and that leadership can benefit from more technical knowledge and continuous training, must hire skilled resources, project managers who know the IA field, while 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 research results. Since implementation of these strategies rely on the executive leadership that run these IT organizations, further research could research a group of IT organizations who implement these strategies, and the IA professionals that work for them to see how effective the strategies are.

Summary and Research 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 reviewed, on the importance of communication and teamwork, continuous training, and that leadership needing 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.

There were major themes that emerged as a result of participant responses. Those themes included: (a) communication and teamwork, (b) leadership need more technical knowledge, (c). 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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