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United States Department of Defense Acquisition of Leading-Edge Information Technology Services and the Impact of Public Market Research on Efficiency and Effectiveness

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United States Department of Defense Acquisition of Leading-Edge Information Technology Services
and the Impact of Public Market Research on Efficiency and Effectiveness

A Dissertation
Presented to the Faculty of the
Department of Public Policy & Administration
West Chester University
West Chester, Pennsylvania

In Partial Fulfillment of the Requirements for the Degree of
Doctorate of Public Administration

By
Thomas (Tim) Denning
May 2020

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Dedication

This dissertation is dedicated to the men and women of the United States Department of Defense, uniformed and civilian, particularly those who I have met, worked alongside, and learned from over the course of my career. Your service to our national security is humbling and inspiring, motivating my own service in the US Navy and the creation of this dissertation. This is especially dedicated to one of those people, GEN Ronald H. Griffith (USA), who continues to inspire me every day to be a better service-member, scholar, leader, and man.
Acknowledgements

First, a huge thank you and acknowledgement to Dr. Jeremy Phillips. An amazing advisor and friend who provided me just the right amount of guidance to make sure I got here. The rest of the faculty at WCU who worked with me and offered any help needed: Dr. Turner, Dr. Osgood, Dr. Davis, Dr. Olejarski, and Dr. Wade. All those who agreed to be interviewed, both in government and in industry. Your identities shall stay with me to grave, but I appreciate your support. My co-workers and bosses who were so supportive as I worked this Doctorate while working for and with them, especially RJ Kolton, MG Gerald H. Putman (USA), Dale Luddeke, Dale Davis, and Carey Vereen. My friends who endured me missing events, being hard to reach at times, but still always remembering to include me. My parents as they were the first to read this and I am who I am because of you. And last, but not least, my best bud Hugo, my pup who was by my side, sleeping for the most part, for every minute of this academic adventure.
Abstract

This dissertation examines the acquisition of leading-edge IT services (LEITS), like those associated with cyber, agile software development, and cloud migration. In an effort to build on previous research, the purpose of this dissertation is twofold: to examine how Public Market Research impacts the LEITS acquisition process in the DoD and to discover strengths and value-added components that exist in the current government acquisition process leading to greater efficiency and effectiveness. Through a mixed methods approach, this dissertation provides recommendations for how to conduct the most efficient and effective LEITS acquisitions, striving to maximize a constrained budget, minimize time to deployment, and increase the mission support provided by industry. A qualitative study examined the DoD acquisition process, from the contracting professional’s perspective, and gained insight into the DoD process for acquiring LEITS. A quantitative study was then conducted, leveraging insight gained through the qualitative study. Conclusions were drawn from the quantitative results to provide recommendations for how to conduct the most efficient and effective LEITS acquisitions. These conclusions included that Public Market Research is a value adding component and successful protests were very rare where it was used. Additionally, the type of contract, length of the contract, dollar value of the contract, and amount of competition for the contract are found to be factors in determining the efficiency and effectiveness of a LEITS acquisition.
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Chapter 1: Dissertation Introduction and Overview

Topic and Purpose

This dissertation broaches a public administration topic within government contracting or government acquisition. Specifically, this dissertation explores how the United States (US) government, the Department of Defense (DoD) in particular, contracts or acquires information technology (IT) services from industry (i.e., the private sector). Even more specifically, this dissertation strives to examine the acquisition of leading-edge IT services (LEITS), assess Public Market Research’s role in DoD LEITS acquisition, and identify the components within the DoD LEITS acquisition process that are most value adding, increasing efficiency and effectiveness to the process.

For the purposes of this research topic, LEITS are defined as services supporting the technologies associated with cyber security, agile software development, and cloud migration.

The purpose of this dissertation is to build upon previous research in two ways: to understand how Public Market Research impacts the LEITS acquisition process within the DoD and to identify strengths and value-added components that exist in the current government acquisition process which lead to greater efficiency and effectiveness, specifically within DoD for LEITS acquisition. The goal is to provide recommendations for how to conduct the most efficient and effective LEITS acquisitions.

This is the first study of its kind that the researcher is aware of, as detailed in the literature review, and builds on a relatively small body of academic research in this subset in the field of public administration and governance.

Research Questions

The research questions focus on the public administration issue of understanding which aspects of the current IT acquisition processes add greater efficiency and greater effectiveness within the DoD acquisition for LEITS. The first succinct question this research study strives to answer is the following:
Within the existing DoD contracting processes used to acquire LEITS, does Public Market Research increase the efficiency and/or effectiveness of LEITS acquisition? A secondary research question seeks to answer is: “What are the most value adding components or items to consider, in terms of efficiency and effectiveness, within the current DoD acquisition process for LEITS?” The researcher contends that the use of Public Market Research on LEITS requirements increases the fair, open, and frequent interaction with industry, thus increasing the efficiency and effectiveness of acquisition. All terms, including Public Market Research, leading-edge IT Services (LEITS), cyber security, agile software development, cloud migration, efficiency, and effectiveness, among other terms, are defined in the Background section.

Importance

Any issues that exist within the government contracting process, specifically those that affect the provision of cyber security, agile software development, and cloud migration services, which support our most critical of national security missions, affect every citizen in the United States. Cyber security is a fast-paced, quickly evolving space that is critical to protecting national security. Agile software development and cloud migration services provide the mission applications and access to massive amounts of data to support national security providers. Given this, the national security implications of the LEITS mission is enormous, making a strong argument for the importance of this research.

DoD budgets are tight, timelines for mission requirements and windows of effectiveness given the dynamic nature of the threat are short, and the mission impact is great. As such, efficient and effective acquisition is crucial to national security. This dissertation examines how working within the existing frameworks and leveraging the existing rules and laws in IT acquisition, with emphasis on certain aspects of the current process, may allow the DoD to acquire LEITS more efficiently and
effectively. This research adds to the conversation around services acquisition in the DoD, delivering importance to national security through the study of both Public Market Research and LEITS acquisition, and how to improve efficiency and effectiveness in acquiring these mission critical requirements.

**Significance**

This dissertation reviews the current services acquisition process and the previous academic research conducted in this area of public administration. It identifies gaps in the previous academic research, studies the impact of Public Market Research on LEITS acquisition, and identifies other aspects of the acquisition process that should be replicated to benefit the DoD’s LEITS acquisition process. This is all with a goal of providing recommendations for how to conduct the most efficient and effective LEITS acquisitions which maximize a constrained budget, minimize time to deployment, and increase the mission support provided by industry.

An extensive literature review reveals that very few studies have been done on this subject. None of those previous studies have been conducted in a mixed methods fashion. As such, this approach strives to build on the minimal previous research and seeks to strengthen its conclusions by leveraging a mixed methods approach. This approach positions the dissertation to be the first to examine this very specific topic in this manner, and is a significant addition to the broader field of public administration and the sub-field that studies government services acquisition.

**Research Design**

This dissertation employs a mixed methods research design. First, a qualitative study looks to understand the DoD acquisition process, from the contracting professional’s perspective, and gain insight into the DoD process for acquiring LEITS. That study consists of a survey followed by open ended, unstructured interviews to ensure a wide range of data is collected and analyzed for the purpose
of drawing conclusions to inform a qualitative study. A quantitative study is then conducted, leveraging insight gained through the qualitative study. A data set of recent DoD cyber security, agile software development, and cloud migration services acquisitions is built by the researcher from publicly available information. Independent variables (IVs), informed by the qualitative study, are tested in a quantitative model against dependent variables (DV s), informed by the research questions and definitions within this dissertation. Conclusions are drawn from the quantitative results to provide recommendations for how to conduct the most efficient and effective LEITS acquisitions.

Conclusions

The dissertation yields several overarching conclusions, drawing from both the qualitative and quantitative methods. The main conclusions are that Public Market Research is a value adding component of the acquisition process, the type of contract can play a role in the success of an acquisition, the length of the contract can be a determining factor in how quickly a solicitation gets award, and dollar values can be a factor in the success of an acquisition, among other conclusions which are detailed in this dissertation. These conclusions support the end objective, which is to provide recommendations—consistent with the current acquisition framework—about how to conduct the most efficient and effective LEITS acquisitions.
Chapter 2: Background

Topic and Purpose

Government contracting, or government acquisition, is an area within the field of public administration in which the government receives support from private companies, supporting the governance structure. The governance structure, or the extension of government through non-governmental entities like contractors, is exemplified through government contracting. As such, a study examining an aspect of contractor usage by the US Government is highly germane to the broader field of public administration and governance.

According to the GAO report Contracting Data Analysis, the federal procurement system in the United States has grown remarkably and totaled over $430 billion annually in 2015 (GAO, 2017). Through Peng (2017), we see that in 2016, the defense budget totaled 3.2% of US GDP, which was a significant decline compared to previous years. This was compared to defense spending in 2010 totaling 4.7% of GDP (Peng, 2017). With those statistics, this is a large industry and represents a true “phenomenon” that deserves study.

However, the purpose of this dissertation is to study a very specific type of government contracting: government services contracting support to the DoD around Leading-Edge IT. As budgets are increasing to record levels, the number of government employees is decreasing. According to Daniel Shipman (2017) and his analysis of DoD active duty forces from 1976 to 2016, we see that at least two million service members were in uniform in 1976, but now that number is down to 1.3 million in 2016. Contractors providing government services contract support make up this difference. As such, government services contracting represents a large portion of that 3.2% of total US GDP (Peng, 2017).

Leading-Edge IT services—or for purposes of this dissertation, services associated with cybersecurity, agile software development, and cloud—contribute to that services total. The cyber-related
threat has been called a “bigger threat than terrorism” (Boyd, 2016, p. 1); software modernization efforts are costing hundreds of millions of dollars across DoD (Garland & Pal, 2019, p. 1); and there is a major move to the cloud with the Joint Enterprise Defense Infrastructure (JEDI) Contract (Miller & Serbu, 2019, p.1).

Much of the previous research, referenced in the dissertation’s literature review, focused on government acquisition is centered on the procurement of products. Platforms, hardware, and software, or “products” acquisition as they would be classified within this dissertation, have garnered the focus of most prior academic and professional study. However, a skilled workforce is necessary to operate these platforms, implement the hardware, and utilize software. The acquisition of support provided by individuals, or professionals who support government missions and become part of the governance structure, is classified within this dissertation as “services.” These individuals who, as contractors, support the DoD LEITS mission are critical. As a result, services acquisition has become, in many ways, even more critical than the acquisition of products. Further yet, very little previous research focuses on government services contracting, specifically around the process of Public Market Research and the positive effects on efficiency and effectiveness that can be realized. What can make services acquisition more efficient and effective is a question that has persisted; the watershed reform effort stemming from the Packard Commission asked the question and it still remains germane today (President's Blue-Ribbon Commission on Defense Management, 1986).

LEITS are acquired in the same manner as other IT Services. Part of the challenge is the DoD IT Systems Acquisition model that is being used to acquire these LEITS. Prior research shows that the process of conducting IT systems acquisitions can be slow, bureaucratic, and cumbersome (Schoeni, 2017). Though bureaucracy can be positive, some aspects of the bureaucratic IT Systems acquisition run contrary to the needs of the missions these technologies support. Cyber security is a fast-paced,
quickly evolving space and acquisition by the government supporting this mission must meet that speed requirement. Agile software development, by its very definition, needs to be acquired in a correspondingly fast and flexible manner. Cloud migration is needed now to meet the mission needs for data on a massive scale.

The question of how we update old laws, processes, and procedures to have the agility to respond to threats in cyberspace and the needs of modernization is often posed around cyber security, agile software development, and cloud migration services acquisition. In fact, as the literature review shows, there have been numerous attempts at reform. It is an unreasonable expectation to attempt to reform all laws, processes, and procedures around this type of acquisition. However, working within the existing frameworks and leveraging the existing rules and laws in IT acquisition, albeit in a slightly modified manner with emphasis on certain aspects of the current process, may allow the DoD to acquire LEITS more effectively. Thus, the goal of this dissertation is to provide recommendations for how to conduct the most efficient and effective LEITS acquisitions within the existing frameworks and regulations to maximize constrained budgets, minimize time to deployment, and increase the mission support provided by industry.

Given all this as background, the broad topic of the research is to examine how the DoD acquires services from industry and how the acquisition of LEITS is conducted. The more specific topic is to assess Public Market Research’s role in acquisition of LEITS and what aspects of the current process to acquire LEITS add the most value to efficiency and effectiveness. The purpose is to build upon previous research to inform, not reform, and improve LEITS acquisition within the DoD.
Research Questions

The research questions center on the public administration issue of understanding which aspects of the current IT acquisition processes add efficiency and greater effectiveness within the DoD acquisition for LEITS. As the literature review shows, this is an understudied area of public administration that is worthy of in-depth analysis and multiple research questions. This dissertation project strives to gain a broader understanding of the value Public Market Research offers in LEITS acquisition and the aspects of the existing LEITS acquisition framework that add the most value leading to efficient and effective LEITS acquisition outcomes.

The succinct question this research study purports to answer is, “Within the existing DoD contracting process, what sub-processes related to Public Market Research increase the efficiency and/or effectiveness of cyber security, agile software development, and cloud migration services (LEITS) acquisition?” A secondary, follow on research question seeks to answer, “What are the most value adding aspects or most important items to consider, in terms of efficiency and effectiveness, within the current acquisition process for LEITS?”

It is the contention of the researcher, a perspective also shared by interviewees in the qualitative method, that the use of Public Market Research on LEITS requirements increases the fair and open interaction with industry. Through personal experience, and observing or participating in numerous LEITS acquisitions, the researcher feels there is a strong connection between interaction of the government and industry and the success of an acquisition. The researcher has observed, and this observation is bolstered by previous research detailed in the literature review, that communication between industry and the contracting community is sometimes lacking (GAO, 2017, p. 3). Based on that experience, the researcher hypothesizes that with an increase in interaction and communication between government and industry, as there is with Public Market Research, there will be a corresponding
increase in the efficiency and effectiveness of LEITS acquisitions. Thus, where Public Market Research is observed, the researcher would hypothesize that fewer protests would be observed and even fewer protests upheld.

In the researcher’s experience, and the shared experiences of other government contracting professionals documented in the qualitative portion of the current study, communication between government customers and industry partners on requirements is essential to having shorter acquisition timelines, fewer protests, and option years being exercised. These three metrics: timelines, protests, and option year exercising, are the dissertation’s measures of efficiency (shorter time to award) and effectiveness (no protests and exercising of option years). In short, the researcher expects to demonstrate that increased communication with contracting professionals and industry, through Public Market Research, is constructive and results in positive improvements to mission through more efficient and effective acquisition of LEITS. All relevant terms, including efficiency and effectiveness, are defined below.

**Definitions.**

Market Research is defined as a “means of collecting and analyzing information about capabilities within the market to satisfy agency needs,” by the Federal Acquisition Regulation (FAR) (2014). *Public Market Research* means conducting market research by soliciting industry directly with the intent of collecting information directly from possible vendors and suppliers. This aspect of the process is not required, as it is “suggested” within the current DoD services acquisition process. As such, sometimes Public Market Research is not conducted, or is not comprehensively conducted, especially within services acquisitions and LEITS acquisitions.

Acquisition, according to the FAR (2014), is defined as the following:
The acquiring by contract with appropriated funds of supplies or services (including construction) by and for the use of the Federal Government through purchase or lease, whether the supplies or services are already in existence or must be created, developed, demonstrated, and evaluated. Acquisition begins at the point when agency needs are established and includes the description of requirements to satisfy agency needs, solicitation and selection of sources, award of contracts, contract financing, contract performance, contract administration, and those technical and management functions directly related to the process of fulfilling agency needs by contract. (FAR, 2014).

The term protest means a written objection by an interested party to any of the following: (1) A solicitation or other request by an agency for offers for a contract for the procurement of property or services; (2) The cancellation of the solicitation or other request; (3) An award or proposed award of the contract; (4) A termination or cancellation of an award of the contract (FAR, 2014). A Contract Vehicle is a streamlined method the government uses to buy goods and services (CDC, 2018).

Solicitations under negotiated procedures are called requests for proposals (RFP) (FAR, 2014). Services are defined as “commercial items” and specifically as “services of a type offered and sold competitively in substantial quantities in the commercial marketplace based on established catalog or market prices for specific tasks performed or specific outcomes to be achieved and under standard commercial terms and conditions” by the FAR (FAR, 2014). Generally speaking, services contracting is a “contract that directly engages the time and effort of a contractor whose primary purpose is to perform an identifiable task rather than to furnish an end item of supply” FAR (2014). Contractors supplementing DoD staff at an installation or in fulfillment of a DoD mission are examples of services contracting.
Cyber security for the purposes of this research pertains to any IT security requirements for the DoD. Agile software development describes any software that is developed using agile management methodology. Cloud refers to any kind of hosting within the cloud or migration of data to the cloud. For the purposes of this research, services around the previously defined technology areas of cyber security, agile software development, and cloud will be referred to as leading-edge IT services (LEITS).

Like any contract or project, federal contracts are issued for a period of performance. Due to funding being issued on a yearly basis, many contracts in the federal government are constructed with a base period of performance and then optional periods of performance. Commonly, those base and optional periods of performance are for a year. Hence, the term “option year(s)” pertain to the option periods of performance awarded as part of a federal contract that are beyond the base period and are contingent on funding and performance (FAR, 2014).

Efficiency, for the purposes of this research, is defined as taking as little time as possible from RFP release to RFP award. This stems from a natural logic that when something takes less time to procure, if it more efficient. Effectiveness, for the purposes of this research, means that there is both a lack of protest in the award decision as well as the execution of option years on an awarded contract. Again, this definition stems from common-sense concept that if a procurement does not have a protest and can be executed, as well as having the options years granted, it is an effective program. If it were not effective, it would likely have not been awarded, would have been protested, or the options years would not have been granted. Further, these were selected as definitions for the terms as these were the best publicly available indicators of success on a program and are a good proxy to publicly available performance data. Other metrics, like Contractor Performance Assessment Reporting System (CPARS), may provide better indicators, but they are not publicly available and are not open to the researcher. A
combination of efficiency and effectiveness, an award being made quickly with the option years executed, will be defined as “success” for this dissertation.

**Importance**

The researcher argues that it is crucial to examine the existing DoD contracting processes used to acquire IT Services and understand which processes, like Public Market Research, may improve efficiency and/or effectiveness in the acquisition LEITS. The magnitude of the threat from cyber intrusions is undisputed. It has been called, “the biggest threat to financial systems,” (Lambert & Barlyn, 2016 p. 1) and potentially had an impact on an American election.

Through the researcher’s personal experience in the government contracting world, several problems have been observed firsthand that exist within the government and industry interaction, including lengthy times to award, with some major procurements taking multiple years to award, protests lodged by non-winners, and challenging contract execution. In the high-stakes game of providing cyber security, agile software development, and cloud migration services to the DoD, one can argue there is no room for those problems.

The US government provides a myriad of services to civilians across many missions. Whether it is Housing and Urban Development (HUD), Health and Human Services (HHS), or the DoD, those government departments/agencies rely on vendor relationships to deliver those services and solutions to secure the critical infrastructure used by United States citizens. If there are problems in procuring services/products, the quality of the missions being carried out by the US Government can be negatively affected. Given how the US Government touches the life of every citizen, issues that exist within the government contracting process, especially those that impact the provision of LEITS in support of the critical public good of our national security missions, impact all people.
DoD budgets are tight, timelines for mission requirements and windows of effectiveness given the dynamic nature of the threat are short, and the mission impact is great. As such, efficient and effective acquisition is crucial to national security. This research will add to the conversation around services acquisition in the DoD, adding importance through its contribution to the study of both Public Market Research and LEITS acquisition and how to improve efficiency and effectiveness in acquiring these mission critical requirements.

The researcher has observed, and this observation is bolstered by previous research detailed in the literature review within this dissertation, that communication between industry and the contracting community is sometimes lacking (GAO, 2017, p. 3). This research, through addressing the two research questions stated, attempts to provide justification for more robust communication between contracting professionals and industry through the medium of Public Market Research. Research that can bridge this divide that sometimes exists between the government and industry is important in enhancing LEITS acquisition effectiveness and efficiency, leading to even better support of critical national security missions.

Significance

This dissertation works to understand the current services acquisition process, study the impact of Public Market Research, and identify aspects of the acquisition process that should be replicated and repeated to benefit the DoD’s contracting of LEITS. This is all with a goal of providing recommendations for how to conduct the most efficient and effective LEITS acquisitions, maximizing a constrained budget, minimizing time to deployment, and increasing the mission support provided by industry.

An extensive literature review is performed as part of this dissertation. The literature review reveals that there is a potential gap in previous research in this subject matter related to DoD services
acquisition. Only a handful of studies reviewed through the literature review address services acquisition and none of those studies sought to learn about Public Market Research and its role in LEITS acquisition.

Further, the literature review reveals very few analyses conducted in a mixed methods fashion have been previously conducted. Given this, an approach that builds on previous anecdotal and qualitative research, while strengthening the conclusions drawn through adding a qualitative component, is utilized. This dissertation is, thus, in a position to be the first to examine this very specific issue through a mixed methods approach, and is significant to the field that studies government services acquisition.

Based on this approach, the researcher is situated to draw unique conclusions that can inform policy and procedural recommendations. The researcher identifies, through an analysis of both quantitative and qualitative data, whether Public Market Research drives benefit to the overall process for acquiring DoD LEITS and what other value adding components exist within the current process. With a goal of recommending the use of value adding components of the LEITS acquisition process versus reforming, the researcher provides value in the form of actionable considerations that directly improve efficiency and effectiveness of LEITS acquisition. These actionable considerations enable the researcher and this dissertation to support maximizing a constrained budget, minimizing time to deployment, and increasing the mission support provided by industry.

**Research Design**

This is a timely study to benefit the field of government acquisition through identifying the benefits and detriments to the current DoD cyber security, agile software development, and cloud migration services, or LEITS, acquisition process. As already stated, the LEITS represent a critical
component of the DoD’s mission to provide the military forces support to deter war and to protect the security of our country.

A mixed methods approach is utilized for the research design. The initial approach is a qualitative study that gains insight to the current LEITS acquisition process from the contracting professional’s perspective. A key insight is what worked and what did not work on previous DoD LEITS acquisitions, as well as the result, per the contract professional’s perspective. This informs the quantitative method.

The design for this qualitative study is, first, to engage in a survey to identify participants. This is then followed by open ended, unstructured interview, of willing participants. The interviewing ensures a wide range of data is collected and is available for analysis for the purposes of informing the quantitative study. The researcher codes potential independent variables (IVs) that are identified by the contracting professionals that potentially impact the outcomes of the LEITS acquisition.

The design for the quantitative study begins with constructing a data set of recent DoD cyber security, agile software development, and cloud migration services acquisitions. This data set is built from publicly available government procurement records as it is pulled from an online database and conditioned for analysis. The IVs, emerging from the qualitative study, are tested against dependent variables (DV s) that best capture the measures of efficiency and effectiveness as defined in this dissertation, within the data set that constructed. Multiple regressions and logistic regressions are utilized to test the IVs against four separate DVs, searching for any statistical significance. Analysis on the results is conducted and the study draws conclusions. Finally, conclusions around the role Public Market Research plays, the processes within LEITS acquisition that add most value, and recommendations to enhance LEITS procurement are made. With the limitations and risks managed and overcome, this study contributes meaningfully to the body of knowledge existing today on DoD
cyber security support services contracting and provides conclusions, recommendations, and perspective to positively influence public administration policies in this area.
Chapter 3: Leading Edge Information Technology Services Acquisition Literature Review

This dissertation reviews previous research to see how the topic of LEITS acquisition and Market Research has previously been studied. The literature review is an exploration of how the proposed dissertation research can complement and continue to build upon prior academic research is endeavored. The objective of this literature review is to conduct a review of the existing research on DoD Services and LEITS acquisition in the DoD to find ways to build upon and expand the existing base of research.

This literature review strives to identify previous literature in the form of studies and articles that examined, or tangentially explored, the topic of DoD’s IT services acquisition process, particularly of LEITS. Specifically, this literature review explores previous studies and articles that examined components of the acquisition process for IT services around leading edge technology, including cyber security services, agile software development services, and cloud migration services. Within those studies and articles, this literature review strives to find previous research that examined processes that added the most value or provided recommendations for how to improve the services acquisition process, with a focus on Public Market Research. The studies and articles that were reviewed, and their relationship to this dissertation’s subject, are detailed below in this literature review.

This literature review serves two specific purposes for the dissertation. First, it looks to validate that this specific topic has not been previously studied in academic research and that the dissertation is a unique research endeavor. Secondly, it sought to find relationships between previous academic research that this study could build upon, such that it is accretive to previous research. This creates a greater understanding of the LEITS acquisition process. This understanding can yield policy recommendations and improvements to the services acquisition process, tying back to the importance
and significance of this dissertation, and produces value to the field of public administration and the subfield of government contracting.

Numerous articles in the review are relevant to the research topic in this dissertation through their analysis of statistics about government contracting. These articles and studies highlight the depth of contracting internationally, contracting within the DoD, and contracting’s importance to national defense. These statistics, highlighted and cited below, form the basis for the significance of this study, and underscore the challenges that exist in this particular area of public administration and governance.

The United States is currently involved with, or is currently negotiating, international agreements covering government procurement with 60 countries. According to GAO (2015), from 2008 through 2012 these countries together spent on average about $4.4 trillion annually to procure goods and services through contracting and to fund capital projects. The federal procurement system in the United States has grown remarkably, and totaled over $500 billion annually in 2009 according to the White House (2009). This was demonstrated by defense spending reaching 4.7% of GDP in 2010. In Peng’s study (2017), we see that in 2016, the defense budget totaled 3.2% of US GDP, which was a significant decline compared to previous years. In March 2017, President Trump proposed a $54 billion increase in defense spending, which is intended to provide increased funding to the fight against the Islamic State (ISIS), according to Zach Cohen (2017). We get a sense of the global, US Federal, and US DoD depth of contracting through these budgetary figures, contributing to the argument that this is a significant area of public administration and governance.

At the same time, while the above referenced DoD budgets were increasing to record levels, manpower levels of DoD government employees were decreasing. According to Daniel Shipman’s analysis of DoD active duty forces from 1976-2016 (2017), referenced above, the force has decreased and contractors make up this difference. As of March 2011, DoD had more contractor personnel in
Afghanistan and Iraq (155,000) than uniformed personnel (145,000). Contractors made up 52% of DoD’s workforce in Afghanistan and Iraq, per the Congressional Research Service (Schwartz & Swain, 2011). These contractors are providing services to the government; they and others that supply services to the DoD are the basis for this study of services acquisition.

Further, it has been noted that even in the sensitive missions that require clearances and involve LEITS, contractors play a large role. The 2016 USCYBERCOM, which handles a very sensitive mission for the DoD, budgeted billets, or full-time equivalent positions, for 963 government employees (military and civilian) and 409 contract employees as highlighted by ADM Michael Rogers (2016).

With the above data and statistics, the scope and significance of the public administration topic that this dissertation examines becomes clearer. Given the size in terms of dollars of this area, and the mission criticality, the need for DoD Services and LEITS contracting process to be studied is evident.

The current Services Acquisition Process (SAP) for the DoD is laid out in Chapter 10 of the Defense Acquisition Guidebook (DAG). Per the DAG (United States Department of Defense, 2004), Chapter 10 provides guidance for executing a proven, repeatable set of procedures that contribute to successful services acquisition based on the seven steps to the service acquisition process included in Department of Defense Instruction (DoDI) 5000.74, Defense Acquisition of Services. As such, this portion of the literature review briefly reviews the three phases and seven steps that comprise the current services acquisition process, per Chapter 10 in the DAG (2004).

The first phase of the SAP is Planning. This sets the foundation from which an acquisition is launched. Planning is comprised of three steps: forming the team, review the current strategy, and market research.

Step I, forming the Multifunction Team (MFT), refers to the need to bring in people from different disciplines that are necessary to conduct and manage a successful acquisition and program.
Those members include requirements owner, Contracting Officer Representative (COR), finance/budget officer, procurement analysts/specialists, legal, and of course, the Contracting Officer (KO).

Step II, Reviewing the Current Strategy, is to be done if a requirement exists currently. This step strives to make sure mission needs are being met, identify problem areas and projected mission changes, and get stakeholders to define their key performance outcomes for this requirement, among other considerations relative to the previous acquisition and current program (United States Department of Defense, 2004).

Step III in the Planning Phase is to conduct market research. This is the assessment the MFT conducts on the current market place to: gauge current technology and business practices, assess competition and small business opportunities, pulse existing and potential new sources of providing the service, and determine if commercial buying practices can be adapted to the mission requirement (United States Department of Defense, 2004). Market Research is not always done publicly, meaning, the acquisition team does not always go out directly to industry, via a public forum, to gauge commercial practices and capabilities. Sometimes, government procurement officials will conduct only internal Market Research, reviewing information they already possess. Internal Market Research, versus Public Market Research, can have drawbacks and sometimes results in dated information being used to make decisions. Given the use of Public Market Research, in the form of a sources sought, capabilities request, or draft RFP, is not mandatory and is only suggested, this is often times skipped by the acquisition team and, instead, is only done internally (United States Department of Defense, 2004).

Again, the researcher hypothesizes that the use of Public Market Research on LEITS requirements increases the fair, open, and evenly distributed interaction with industry. Harking back to the research questions and resulting hypothesis, with the increase in communication, the researcher would
hypothesize that there will be a corresponding increase in the efficiency and effectiveness of LEITS acquisitions. It is the intention of this research to demonstrate the value in conducting Public Market Research on all LEITS acquisitions. Other services acquisitions may be able to skip this step, but it is hypothesized that LEITS acquisitions will have increased efficiency and effectiveness through Public Market Research. Upon completion of these three steps, the first phase is complete and the Services Acquisition can move on to the second phase.

The second phase in the Services Acquisition Process is the Development Phase. This phase is comprised of two steps: Requirements Definition and Acquisition Strategy. In Step IV of the overall Services Acquisition Process, Requirements Definition—the requirements roadmap process to define programmatic High-Level Objectives and tasks, standards, allowable variations, and method of inspection—is completed. After completing the roadmap, the MFT will develop a performance work statement (PWS), quality assurance surveillance plan (QASP), and develop a government estimate of contract price for the required service.

Step V, Developing the Acquisition Strategy, follows eight established tenets to assess and develop an acquisition strategy that leverages a contract type and performance incentives to deliver a best value mission performance to the customer (United States Department of Defense, 2004). With the first two phases and first five steps complete, a services acquisition can move on to the final phase of the process.

Phase three, the final phase, is Execution and is comprised of two steps: Execute Strategy and Performance Management. Step VI in the overall process, Execute Strategy, works to create a solicitation document that formally communicates to industry the Service Contract’s requirements and strategy. The DoD will receive contractor proposals explaining how industry/offerors will meet the performance results and standards. The MFT will evaluate industry/the offerors proposals against the
pre-determined evaluation criteria to assess the best value to the DoD. Then, an award to the best situated industry partner/offeror is made.

This leads to Step VII, the final step in the Services Acquisition Process, which is to Manage Performance. This part of the process involves two key areas. The first area is contract management, or the administering contract requirements such as invoicing and payments. The second area is performance management, or the managing the relationships and expectations of both the contractor and customer in terms of the contract achieving the required mission performance (United States Department of Defense, 2004). Upon reaching this step, the process is complete. Should there be a continuing mission need for this requirement, the process will begin again for the next iteration of the services contract planning.

In reviewing this Services Acquisition Process as detailed in Chapter 10 of the DAG, numerous observations can be made. Primarily, the process is long. The timeline to complete some of these steps can be weeks or even months. Next, this is a very defined and detailed process. Though tailoring can be utilized, the requirements are clear and comprehensive, and very few shortcuts exist. Also, when looking for shortcuts, steps might not be completely skipped, but they may be conducted quickly and not as thoroughly as possible. In the interest of time in an acquisition, some steps can get completed hastily. Steps in the process, like Market Research, may receive a cursory completion but not as thorough a review as possible, should time not be a constraint. These, and other observations, are clear with a review of the current DoD Services Acquisition Process.

There is also a perceived phenomenon around bid protests (referred to as protests) in the Services Acquisition Process. According to GAO:

Federal agencies are required to award government contracts in accordance with numerous acquisition laws and regulations. If a party interested in a government contract believes
that an agency has violated procurement law or regulation in a solicitation for goods or
services, or in the award of a contract, it may file a bid Protest with our office. GAO
provides an inexpensive and expeditious forum for the resolution of Bid Protests. (GAO,
2019)

There are three types of Protests, per GSA (2017), that are available to bidders. They are: Contracting
Officer Protest, where the contractor may protest the decision directly to the Contracting Officer. There
is an Agency Protest, where the contractor may bypass the Contracting Officer and make a Protest direct
to the APO, who will then issue a decision following the process. Finally, there is a Government
Accountability Office (GAO) Protest, where the contractor may file a bid Protest with GAO (2019).

Bid Protests occur seemingly frequently in services contract competitions, especially
those involving LEITS acquisitions. They have been occurring more in recent years, with 2018 among
the highest frequency of Protests lodged ever (Kuldell, 2018). Protests are getting more and more
attention, with over 250 open according to GAO in August of 2019 and well over 2,000 filed a year the
past five years (GAO, 2019), and companies are using the Protest process as a strategy. A recent
notable example of the prevalence of protests, as seen in an article by Jason Miller and
Jared Serbu (2019) is on the JEDI Contract where companies are jockeying for competitive position
through protesting.

With a review of the Services Acquisition Process and some of its characteristics complete, this
literature review shifts to look at other pertinent previous research. Some previous research on DoD
Acquisition strove to examine the bureaucratic nature of the process. The DoD acquisition process and
contracting apparatus are considered bureaucratic in nature, especially when defining within the six
characteristics of a bureaucratic organization according to Max Weber (1946).
Predictability is one of those six Weberian characteristics. The Services Acquisition Process, described above in detail, is so predictable that an entire industry has been built around advising the Defense Industrial Base on how to most advantageously compete for these contracts. The industry of promoting “best practices” and business development process has been pioneered by a company named Shipley and Associates. They took the predictable DoD acquisition system and created a mirror image of the process for industry to follow in responding to requests. This is a big industry, with many companies in existence to support corporations in Business Development endeavors. These companies include, in addition to Shipley and Associates, firms like Red Team, AOC-Key Solutions, and others. By having a predictable DoD process, industry is capable of having its own response process, driven by best practices, that produces higher quality deliverables for the government and, in the end, is a positive attribute of the bureaucracy that exists in the DoD (APMP, 2019).

Predictability also lends itself to repetition, another Weberian characteristic. Through a combination of the massive amounts of requirements, and the predictability with which the mission capabilities are acquired, best practices are derived on both sides. This allows for those within the DoD to hone their skills and for industry to have a great deal of opportunity to support DoD requirements. In a study of “Competition and Bidding Data as an Indicator of the Health of the U.S. Defense Industrial Base,” by Sanders, Ellman, and Cohen (2015), we see that repetition and the vast numbers of competitors provide a better end product for government. Having this predictability and repetition, stemming from the bureaucratic nature of the DoD acquisition system, we observe tangible benefits to both industry and the DoD in terms of the capabilities delivered and the opportunities to compete.

Duplication and redundancy, hallmark characteristics of a Weberian bureaucracy, can be negative when considering DoD acquisition. In this context, duplication of requirements that come from a lack of coordination is very detrimental. Going back to a 2014 study by DiNapoli (2014), it was
discovered that most spending by these agencies’ IT services, however, continues to be obligated through hundreds of potentially duplicative contracts that diminish the government’s buying power. These agencies manage between 10 and 44 percent of their IT services spending through preferred strategic sourcing contracts in fiscal year 2013 (DiNapoli, 2015). This lack of coordination and duplication stemming from the hierarchical and vast bureaucracy within the procurement community creates obvious detriment to the taxpayer through leaving huge potential cost savings on the table.

A classic characteristic of a bureaucracy, according to Weber, is the reliance on written rules. This drives positive traits of predictability, as covered earlier. Yet, the written rules can also breed excessive reliance on rules and regulations and a penchant for creating more rules. This overreliance on rules and regulations can drive out positive progressions, like innovation. Innovation can be seen as “risky” and one of the positive traits of a bureaucracy like the DoD acquisition system is its predictability and rules which reduce risk. However, there are times where innovation and a deviation and/or amending of the rules and regulations to allow for innovation would be a positive thing. We see an example of this when looking at a Naval Post-Graduate school study, “Acquisition Risks in a World of Joint Capabilities: Evaluating Complex Configurations.” (Brown, 2015) When there is innovation, bureaucracy can slow it down; this is a well-established concept supported by many studies and data (Brown, 2015).

Further, in the DoD threat environment today, there is a strong requirement to think across the entire DoD in a joint fashion and respond to those needs with joint solutions. In this context, “joint” means across the forces comprising DoD; these include: Army, Air Force, Navy, and Marines, as well as Office of Secretary of Defense entities. As such, there is added complexity of considering joint requirements, which increases bureaucracy, and thus can slow innovation (Brown, 2015). Given this
need to be innovative, think jointly, and move quickly, the bureaucratic processes that can slow innovation are a detrimental aspect of DoD acquisition system.

Staying with the theme of overreliance on rules and regulations leading to lack of innovation, some previous research profiled in this literature review contended that there is also simply a lack of questioning and critical thought in the process. By having people act like “cogs in a machine,” a positive trait of stability emerges in the bureaucratic DoD acquisition system. However, there is a negative aspect in that characteristic as a lack of critical thinking could potentially result. “Process,” argues Reeves, “is at once a useful management tool, often maddening and the bureaucrats’ comfort food. For defense acquisition, process reached its zenith in 1991 with 840 pages of instruction, regulation and policy in the Department of Defense (DoD) Instruction 5000 series” (Reeves, 2014). Critical issues are not broached, like taking a step back and asking if the path being followed is the right path. An example is seen with Brown and Brudney (1998) in the Geographic Information Systems (GIS) mission. Based on Brown and Brundey’s findings, there has been an overreliance on contracting and the GIS mission can be compromised when an overreliance on the contracting exists. Had critical thinking been employed during the process, the crucial question of “Is this the right path?” may have been posed and a better balance between the bureaucratic administration organization and the industry could have been developed.

Other previous research on DoD acquisition skirts an analysis of Weberian bureaucratic characteristics and delves into examination of whether the above DoD acquisition process is problematic or not a detriment to the mission. Schoeni (2017) postulates that the DoD’s acquisition process has proven unable to keep pace with the emerging threats. As a result, Congress relieved some of the regulatory and process burden on cyber procurements in the 2016 and 2017 National Defense Authorization Acts, but the process can still drown progress and can be “too slow to deliver,” per the
title of Schoeni’s article (2017). Reinforcing this perspective, Burch-Bynum (2013) concludes that traditional defense acquisition process is not suited for IT. Myers (2014) determines that the formal, long DoD acquisition process has a tendency to stunt innovation. Further, Lapham, et al. (2010) highlight how it is widely believed, both by program offices and DoD contractors, that the DoD 5000 series and other regulations and guidance documents limit the government and contractors from using a non-Waterfall approach. They contend, however, that the DoD regulations can, to a degree, permit “innovative” approaches, like Agile, to be used (Lapham, et al., 2010).

Agile is a very effective, and currently widely utilized, program and project management methodology. However, an article by Balter (2011) suggests that the structure of traditional government contracting is not amenable to agile development methods. For three reasons, government contracts are not written for Agile (Cheng, 2010). First, as a matter of public policy, government contracting typically requires agencies to prefer competition at the cost of project deliverables (Sherman, 1991). Second, government programs generally involve significant lead times—forcing funding to be mapped out well in advance, rendering a "develop as you go" method counterintuitive (Cheng, 2010). Finally, most contract vehicles call for stable requirements, a method inherently incompatible with an adaptive model (Balter, 2011). Given this, it can be concluded that the current acquisition process and its requirements are a deterrent in utilizing an effective methodology.

On the other side of this argument, some articles in this review contend that the process is not, in fact, the problem. These articles determine that ample latitude exists within the process to accommodate speed, efficiency and, ultimately, effectiveness. The Guidebook for the Acquisition of Services highlights many ways the process is tailorable and can fit the needs of a specific acquisition (United States Department of Defense, 2004).
Returning to Balter (2011), and the question of Agile being an effective program management and delivery methodology, a potential hurdle is that Agile does not readily accommodate large dissertation events such as Critical Design Review (CDR). However, the programs that have used Agile in software development have found that the DoD 5000 series has great flexibility and does not, in fact, preclude the use of Agile (Lapham, et al., 2010). The acquisition “process,” Lapham, et al. (2010) contend, does not hinder the ability to use new methodologies given its flexibility.

Further, flexibility, responsiveness, innovation, and collaboration are all terms that one might see when discussing Agile. These terms are in fact section headings in DoD 5000.01. This is an observation by Wrubel and Gross (2015). One could easily interpret these sections as encouraging the use of methods such as Agile. Other sections on Integrated Test and Evaluation, Professional Workforce, and System Engineering also support the use of Agile. Wrubel and Gross would argue that the DoD appears to be open to methods other than traditional Waterfall (Lapham, et al., 2010). Additionally, Wrubel and Gross point out that “Contracting Officers are encouraged by the FAR to adapt business practices to support innovative methods and techniques, so far as those adaptations are consistent with the FAR, federal law, and agency policy and regulation” (Wrubel & Gross, 2015, p 15).

Also, Christle, et al. (2009) remind us that there is very little consistency in the processes utilized. Thus, one can argue that it is a people issue, not necessarily a process issue. All these points support the assertion that the acquisition process can be tailored to accommodate the business needs of the DoD, and that process is not necessarily the problem in inefficient and ineffective acquisition.

Tying many of the points together nicely, highlighting how the process is not necessarily the problem, is McKernan, et al. (2015). The extent to which programs take advantage of opportunities to tailor processes and documentation is not clear, but anecdotal evidence suggests that tailoring can be
more difficult in practice than guidance suggests (McKernan, et al., 2015). Though there certainly can be tailoring within the process to produce necessary results, it is challenging. The challenge falls to the workforce. This highlights one of the key ingredients leading to successful tailoring of the process: those involved should be educated, mentored, and trained to understand how to tailor the acquisition process, delivering the needed capability to the warfighter. This emphasizes a training issue, rather than a process issue (McKernan, et al., 2015). Education and training are important, so the workforce knows how to tailor acquisition procedures (McKernan, et al., 2015). As such, tailoring is becoming more practical and possible as the workforce improves.

Other reasons accounting for the struggles in acquisition, aside from process, are recognized by experts. Rendon (2010) points to the fact that the workforce is growing smaller and is aging, which can contribute to innovation challenges. Tailoring is constrained by various bureaucratic characteristics, such as high turnover among senior leaders, weak support for tailoring, and weak incentives and structures. Thus, though the process can be tailored within the process to produce necessary results, it is challenging to do successfully without senior leadership support, training, and an experienced workforce (Rendon, 2010).

In a study by Mills, et al. (2011), it is revealed that key characteristics of successful partnership, and by extension acquisition, between government and industry includes money, respect, communication, leadership, and clear process. The current model of acquisition certainly allows for all those characteristics, particularly process, to be present. However, communication can sometimes be lacking. This is a critical point that holds true in any government acquisition, especially those in LEITS. Communication is critical for a successful partnership and a successful acquisition.

In a similar vein, Huitink (2014) contends that effective acquisition and getting a good business deal for the government requires situational awareness and sound judgment in the conduct of one’s
day-to-day work, which can be reinforced and bolstered by the presence of a clear process driven by best practices.

In another article, profiled earlier, Smith (2008) argues that greater oversight, while helpful, is not as effective a cure as competition and transparency. Competition and transparency engage the right players in the system to be most effective for reform through measures that promote competition and ultimately transparency; both are crucial because it makes the system work better. As such, the article suggests that competition and transparency, or lack thereof is the challenge, not process. In fact, the process can yield more competition and transparency.

Ultimately, one might argue, the problem is not one of process, but one of culture. Edie and Allen (2012) argue, in the context of Kotler’s Transformation Model, that the model yields eight errors, five of which DoD does wrong. None of these errors revealed by the Transformation Model are necessarily related to process, but are culture related. Organizational culture, among the other reasons found through the literature review, made the case that other aspects of DoD acquisition, and not the process itself, are responsible for inefficiencies and ineffectiveness observed.

Lareina Adams (2017) echoes this sentiment, with an assertion that research revealed that the primary obstacle to increased adoption of agile practices in the DoD is not fundamentally policy or process related, nor unbendingly restricted by law or regulation. The DoD 5000 series directives and instructions encourage flexibility in tailoring program oversight and documentation requirements to reduce administrative bureaucracy. The principal limitation identified in multiple sources is largely cultural (Adams, 2017). So, as convenient as it is to blame process of the inefficiency and ineffectiveness in IT Systems, and LEITS, acquisition, Balter (2011) and Adams (2017) would argue it is mainly attributed to other factors.
Other previous articles and studies delved into what is required to have a successful DoD acquisition. In an article by Smith (2008), she argues that greater oversight, while helpful, is not as effective a cure for the ills of the procurement processes as competition and transparency. Competition and transparency engage the right stakeholders in the system to be most effective in reform through measures that promote competition and ultimately transparency. Smith also suggests that competition as a form of transparency is crucial because it makes the system work better. Provided as an example, GSA’s multiple award schedules are designed to streamline government procurement by permitting the government to buy commonly used supplies and services directly from approved vendors at pre-negotiated prices (Wakeman, 1998). However, a problem occurred; even while spending soared, the number of GSA Contracting Officers stayed flat. This was indicative of government customers not using the GSA contracts. As a result, Smith contends that transparency in the spending suffers. Even with some requirements to publicly list task order contracts, the alleged lack of transparency causes an environment that, instead of promoting competition, promotes collusion between agencies and contractors to avoid competition (Smith 2008).

Along with transparency, effectiveness and success in an acquisition can also be determined by the quality of the communication, an essential element of transparency. In a study done by Corzine (2015), effectiveness of outsourcing by the DoD can be distilled into two distinct elements: well-defined requirements and private sector technical expertise. Communication of requirements by the government customer and communication of capabilities and past performance by the industry partner is critical. In technology acquisitions, which are the focus of Corzine’s work is placed, these two elements are essential to achieving successful outcomes for both the government and the vendor, making transparency, communication, and expertise essential elements in successful acquisitions. This is a critical point that is drawn upon in the mixed methods approach and in the conclusion:
communication between the government and industry is critical to successful acquisition. Tools like Public Market Research can help facilitate communication, thus making Market Research important to acquisition.

Oversight is also found to be critical in having successful acquisitions by previous research. A study by Schwartz and Church (2013) offers that contractors provide a wide range of services, from transportation, to construction, and base support, freeing up government personnel to fulfill other direct support requirements. However, as the effective use of contractors can augment military capabilities, the ineffective or unsupervised use of contractors can lead to the wasteful spending of billions of dollars (Schwartz & Church, 2013). Therefore, for acquisition to truly be successful oversight and control, fostered by transparency, in the DoD is essential.

Another key ingredient for a successful acquisition that the literature review reveals, and is detailed above in the reform section, is leadership. Tying to the theme of leadership being needed for successful acquisitions or acquisition reform to occur, a study by Williams (2016) shows that for acquisitions to be successful, workers must feel satisfaction. Given that contractors are generally as satisfied in their jobs as government employees, satisfaction of contractors in their roles is critical to doing a good job (Williams, 2016). Satisfaction in a job often stems from clarity in one’s role and a sense of belonging fostered by good leadership, making leadership very important in ensuring successful acquisition.

While leadership matters all the time and in every facet of government and industry interaction, it especially matters in acquisition reform. Change initiatives within the DoD are policies with major implications for the DoD’s various stakeholders; acquisition reforms are characterized as change initiatives. Huitink (2014) identifies the problems, specifically of implementing the acquisition reform of Better Buying Power, along three dimensions which are revealed through policy implementation
research: policy content, organizational capacity, and managerial craft. They can represent barriers to implementing any reform and can only be overcome by strong leadership. If leadership can overcome these barriers, any acquisition reform can have a chance to succeed (Huitink, 2014).

In an article by Eric Prier and Clifford McCue (2009), lexicon and terminology in government contracting, an element that is critical to the success of acquisition, is addressed. At all levels of government, inconsistencies exist regarding the use of terminology, as well as the level of knowledge around public procurement. Terminology vagueness hinders attempts to reform the field and causes a lack of concentration about pertinent issues. Although he examines the implications of the muddled nature of public procurement that leads to a debate on lexicon, the research also reveals three dimensions of successful public procurement systems. The legal authority for action, the institutional and organizational environment in which practitioners operate, and the activities and actions that comprise the public procurement sphere (Prier & McCue, 2009). These must exist for procurement and acquisition to occur and be successful.

Above all else, what is needed for a successful acquisition is ethics. In a paper titled “Ethics and Acquisition Professionalism,” acquisition executives are asked numerous questions about DoD acquisition and the importance of ethics and credibility in making acquisition successful (Kendall, 2014). Frank Kendall probably put it best in this article when he said, “Building our credibility as defense acquisition professionals is a career-long effort. Destroying it only takes a moment. John Betti was right; our credibility is our most valuable possession” (Kendall, 2014, p. 4).

Over the past several decades, there have been multiple attempts to reform the acquisition process. Some articles that are germane to this literature review examine the reform efforts that were undertaken and their effectiveness. Per Yukins (2010), there are numerous academic works that examine discrete elements within the history of DoD acquisition. These works include analyses of very
specific efforts to reform the rules governing federal procurement. Many of the academic works in this review center on these specific attempts at reform.

A thorough review into the Packard Commission is taken by Hanks and colleagues in “Reexamining Military Acquisition Reform; Are We There Yet?” (2005). Conducted over fiscal years 2002–2003, this study was sponsored by the Assistant Secretary of the Army for Acquisition, Logistics, and Technology, [ASA(ALT)] with project oversight provided by the Office of the Director for Policy and Procurement within the ASA(ALT) organization. The findings seek ways to achieve greater responsiveness, effectiveness, and efficiency in the defense acquisition process (Hanks, et al., 2005). The commission finds that the defense acquisition system has basic problems that must be corrected. These problems are deeply entrenched and have developed over several decades from an increasingly bureaucratic and over-regulated process. As a result, too many of our weapon systems cost too much, take too long to develop, and by the time they are fielded, incorporate obsolete technology (Hanks et al., 2005).

After the Packard Commission, Goldwater Nichols attempted to reform acquisition. The paper, “The Goldwater-Nichols Act and Its Effect on Navy Acquisition” by Nemfakos et al. (2010), focuses on the implementation of the Goldwater-Nichols Act in the Department of the Navy and on related acquisition reforms. It also assesses the influence of several other factors that, in large part, made passage of the Goldwater-Nichols legislation possible, color its implementation, and complicate the adoption of common-sense changes during the implementation process (Nemfakos, et al., 2010). At a macro level, this leads to a failure of reform attempts and increases negative aspects of bureaucracy. In a similar vein, “Has it Worked? The Goldwater-Nichols Reorganization Act,” by Locher (2001), studies the effect of Goldwater-Nichols and how that act effects acquisition, concluding that though there are some improvements, many challenges remain. The lessons of paying attention to defense,
because of its impact to security, and the balance between loyalty to service and devotion to the larger needs of the nation, are key conclusions of this study (Locher, 2001).

In 2003, the Services Acquisition Reform Act is another attempt to "reform" government contracting. In a paper by Prier and McCue (2009), the ARA and other reforms are explored and the implications of the muddled nature of procurements are profiled. It concludes that ARA leads to uncertainty about the proper role of procurement practitioners in the process, which is a negative result.

In a study by Schwartz (2013), an overview of 2010 efforts to overhaul DoD Acquisition Process is conducted. In fiscal year (FY) 2009, a number of major efforts were undertaken to reform the DoD acquisition process. DoD issued an updated and revised DoD Instruction 5000.2 (which governs the process for acquiring systems) and issued an updated and revised “Instruction, Joint Capabilities Integration and Development System”, which governs the process for deciding what capabilities new weapon systems require (Schwartz, 2013). However, for well over 100 years, there have been issues with contracting. As Deputy Secretary of Defense William Lynn stated, “Since the end of World War II, there have been nearly 130 studies on acquisition reform” (Schwartz, 2013). Despite the numerous studies, congressional hearings, and DoD reports that echo the same themes and highlighted the same weaknesses in the acquisition process, acquisition reform efforts pursued over the last 30 years have been unable to rein in cost and schedule growth (Schwartz, 2013). This analysis of the reform efforts demonstrates a history of trying to improve acquisition with few concrete results or breakthroughs. This historical analysis of acquisition calls into question the efficacy of process reform, in general.

In similar vein, an article by Edie and Allen (2012) shows that for over 60 years the Department of Defense has been attempting to fix its weapons procurement system without success. Popularly known as “Acquisition Reform,” these efforts did not yield a process or system that delivers its
products cheaper, faster, or better. In 2009, President Obama combined his efforts with strong bipartisan support in the Senate and like-minded leadership in the Office of the Secretary of Defense to make another effort at reform. Through an analysis that applies John P. Kotter’s model of organizational change and Edgar H. Schein’s approach to organizational culture and leadership, Eide and Allen found that success in reform is unlikely due to cultural challenges (Eide & Allen, 2012). Behavioral change is necessary to effect any transformation. Acquisition reforms can be coerced but will not endure as true transformation unless cultural change occurs.

There has been a history of reform, not only aligned to process around DoD acquisition, but also in workforce development. Many of the procedural reforms have a workforce component, with several efforts to reform development of the workforce. Case studies of a quantitative measure, like “Measuring the Effect of the Defense Acquisition Workforce Improvement Act” by Joseph Pope (1997), work to explore the use of metrics for acquisition reform, using the Defense Acquisition Workforce Improvement Act (DAWIA). Broadway (2016) conducts a qualitative case study to examine the initiatives the U.S. government implemented to develop the acquisition workforce and reviews the results of those initiatives. The results of the initiatives implemented seeking to improve the acquisition workforce show progress. However, weakness associated with contracts oversight still exist. To improve the federal acquisition workforce, Broadway recommends the U.S. government reevaluate current initiatives to determine if they are, in fact, effective and achievable (Broadway, 2016).

Despite the previous efforts at reform, many of the previously researched studies and articles include an assessment of the continuing need for improvement in government and, specifically, DoD acquisition. To give some context, a 10% improvement in acquisition would lead to a freeing up of $25 billion in budget, according to Gansler and Lucyshyn (2005). To further frame the issue, an article by Thomas Miller (2010) postulates that all affected parties (with perhaps the exception of the defense
industry) are in general agreement that changes are necessary. However, the question of how we change the system to produce the desired outcome (a more efficient system with more predictable cost and schedule outcomes), without negatively impacting our capability to effect war when required, is up for debate.

The first challenge for the key players of Congress and the Executive Branch that Thomas Miller notes is to identify the root causes of the problems. One such root cause is an unequal distribution of power and influence and systemic disincentives to make changes that will affect stakeholders through implementation of legislation. It is difficult to achieve, but if there is adequate motivation to try (Miller, 2010), the amount of money that could be saved and the national security impacts are motivation enough to make an attempt at improving acquisition.

A consideration for the need for improvement in acquisition is that government acquisition is, at its most basic, a principal-agent theory issue. Principal-agent theory is a key consideration in acquisition. In an article by Jensen and Meckling (1976), the authors assert that agency theory concludes that there is always "residual loss" in any principal-agent relationship. Some immutable, residual deviation by the agent from the principal's ends that cannot be erased through monitoring or bonding. That residual loss might, on its face, suggest that using an agent is always a losing proposition or, put in the language of procurement that no function should ever be contracted out. The lack of logic in that extreme solution points out the other costs (the opportunity costs of not engaging a highly qualified agent, for example) that also must be considered when weighing the costs and benefits of using an agent. Given this principal-agent theory consideration, the need for improving as much as possible is great (Yukins, 2010). The challenge, then, is to integrate the conceptual structure offered by agency theory with existing and accepted norms in the procurement system.
In a 2002 article, Professor Steven Schooner (2002) describes important elements of any successful procurement system as the "desiderata.” Of those, the three key qualities are competition, integrity, and transparency. Each of those qualities, and several others, including efficiency, uniformity, customer satisfaction, best value, and risk avoidance, are assessed through the prism of the principal-agent model (Yukins, 2010).

Another aspect in need of improvement, that is aligned to the principle agent theory, is the need to take less time in decision making and, as a result, empower people to make decisions. In an article by Myers (2014), a key takeaway is that the DoD needs to empower people more to make decisions, and train them to do so. This inability to make decisions at a lower level causes delays and results in decision making taking a great deal of time.

Burch-Bynum (2013) strives to study the impeding factors that prevent the DoD from acquiring new IT Systems in a timely manner. The timeline for decision making is reviewed in this study. The many levels of approvals in DoD acquisition, stemming from the lack of authority at lower levels to make decisions, is highlighted as a cause for the delays, driving a need for improvement. Further, in an article by Schoeni (2017), the lack of timeliness in the DoD’s acquisition process proves unable to keep pace with the emerging threat. As a result, Congress relieved some of the regulatory burden on cyber procurement in the 2016 and 2017 National Defense Authorization Acts (NDAAAs). Recommendations for software procurement being coupled with hardware and non-procurement considerations, were made and included in the Acts. Further improvements, with other transaction authority and other rapid acquisition authority, are underway but more improvement is still needed (Schoeni, 2017).

Some previous literature examines how the use of data must be better by DoD in acquisitions. In part because of the massive size of DoD acquisition, the bureaucracy described above, and a tendency to have “silo-ing”, acquisition decision makers may not always use all the data available to
them. A congressional study by Moshe Schwartz (2016) finds that the DoD does not use data adequately to make decisions. Senior DoD officials acknowledge that the department does not sufficiently use data to inform decision making and emphasize the need to transition to a more data-driven decision-making process. Efforts are underway to improve IT systems, data quality, and the use of data to inform policy decision. Many past efforts to use data to drive efficiency and management within DoD have not succeeded, and those that have met success still sometimes fell short of initial expectations. To succeed in these efforts, many argue that there must be a culture within DoD that not only values using data to drive decisions, but also integrates data gathering and analysis into the very fabric of the organization, making it part of standard routines and operating procedures (Schwartz, 2016). Similarly, a study by Good (2015) found that procurement must become more strategic and less fixated on costs to achieve its true potential. Data and a culture change are critical to achieving this, per Good. Further, Baney and Krzysko (2012) offer a similar perspective that agility, data, and visibility improve acquisition. The DoD must use data and provide transparency. Additionally, per Deitz (2011), new advances in technology like Artificial Intelligence (AI) offer new capabilities to aid government procurement around data. These advancements are just a few examples of efforts driving a culture change and the need for improvement in DoD acquisition, making them germane to the study of services acquisition in the DoD.

In an effort to explore improvement, Ralph (2014) examines whether our government could work more efficiently. Rather than continuing on its current course of procurement reform, addressing issues raised by industry and other stakeholders and reacting to perceived crises, policymakers can take a transaction management approach to procurement reform to achieve greater efficiencies. Transaction management is defined as "knowing how to keep transaction costs low." However, critics, like Hahn and Dudley (2007), note that they, “are expensive to perform, and agencies often do not have the
funding to conduct them effectively” (Hahn & Dudley, 2007, p. 208). The contracting workforce is already too overburdened with requirements to consider additional matters that will result in more bureaucracy. Though driving costs down is a good endeavor, it cannot be at the cost of adding more burden to an already overtaxed workforce.

With a literature review assessing the process by which DoD acquires services and the previous research in this area conducted, questions for future research emerge. Which aspects within this three-phased, seven-step process for acquiring services, specifically LEITS, brings the most value? Further, a more specific question: Within the existing DoD contracting processes used to acquire LEITS, which processes, specifically related to Market Research, increase the efficiency and/or effectiveness of acquisition?

**Literature Review Conclusion**

As demonstrated through the entirety of the literature review, very little previous research studies services acquisition within the broader DoD acquisition. Further, virtually no previous research is found examining this dissertation’s specific topic of LEITS acquisition nor Public Market Research and its effect on improving those acquisitions. This exhaustive Literature Review found only two prior research projects examining services acquisition that are focused on the DoD. Those articles that are closest to and most directly related to the subject matter were Wilhite and colleagues’ work, “Management Levers that Drive Services Contracting Success,” and McKernan and colleagues’ work “Tailoring the Acquisition Process in the U.S. Department of Defense.”

Wilhite and colleagues (Wilhite, Stover, and Hart, 2013) examine the problems that plague DoD services acquisition. They hypothesize that the problems may be from a lack of standard definition for success. They noted that since contract success and failure is recorded through the Contract Past Performance Assessment Reporting System (CPARS) this information is used for the proxy definition
for success. This definition addresses the following questions: (A) Do the types of services being acquired affect the success of a service contract? (B) Do the contractual amounts affect the success of a service contract? (C) Does the level of competition used affect the success of a service contract? and (D) Does the contract type affect the success of a services contract? (Wilhite, et al., 2013)

Their report examines 715 CPARS entries. The findings reveal that contractual amounts and level of competition affect the success of a service contract. The findings also reveal that the failure rate in CPARS is lower than expected. Further, through an analysis of CPARs data, they determine that nearly 1/3 of contracts in 2006 had insufficient oversight (Wilhite, et al., 2013).

Their objective of identifying variables in the service contracting process that promote successful service contracts is partially met, but this is only tangentially related to this dissertation’s topic. This dissertation attempts to look more deeply as very specific variables. Wilhite et. al. looked at variables of types of services, amount of competition, and contract type (Wilhite, et al., 2013). These data points, though related to this dissertation, are more about the results of the procurement versus the process to procure. As such, this dissertation represents an extension of Wilhite, Stover, and Hart’s work and draws on the variables selected by Wilhite, Stover, and Hart to inform the quantitative study.

McKernan, et al. (2015) conduct a study that is all about acquisition tailoring. They explored how tailoring of the acquisition process works best. As a result, there is exploration of what aspects of the process are most important. They determine success in tailoring requires senior leadership support, guidance and mentoring, and strong planning. There also needs to be a heavy reliance on a critically thinking workforce (McKernan, et al., 2015).

However, this article misses key areas, as it does not examine which sub-processes within the overall process work best and should be retained. The study does not look to address which parts of the process yield the greatest value in the acquisition. Specific facets of the process, like Market Research’s
role, are not studied. Further, this article primarily studies products, not services (McKernan et al., 2015). As such, this study relates to this dissertation topic but is not directly overlapping. This dissertation represents an extension of this previous study’s topic in the realm of value adding processes in services acquisition.

Although they are related, certainly more related than the hundreds of other articles and studies examined over the course of this literature review, neither study is found to be directly related to or replicating the proposed research in this dissertation study. No articles are found that attempt to understand the services acquisition process, understand what components of the acquisition process for services are the most valuable, and understand how market research impacts a services acquisition. The previous literature review did not find any efforts to identify strengths that exist in the current government acquisition process for LEITS acquisition specifically, nor were any studies found that focused on market research. Further yet, no studies were found in this topic area that incorporated a mixed methods approach, drawing conclusions through quantitative and qualitative data analysis.

Additionally, there are two other articles in the literature review that are of critical importance to the topic: the research questions and the researcher’s hypothesis. The researcher’s hypothesis is that Public Market Research on LEITS requirements increases the fair and open interaction with industry and with the increase in communication, there will be a corresponding increase in the efficiency and effectiveness of LEITS acquisitions. An assumption contained within that hypothesis, and the topic, is that communication is critical to the success of an acquisition. Two prior pieces of research, detailed in the literature review, help bolster that assumption and give it credence. Theresa Corzine (2015) finds that along with transparency, effectiveness and success in an acquisition can also be determined by the quality of the communication, an essential element of transparency. Communication of requirements by the government customer and communication of capabilities and past performance by the industry
partner is critical to successful acquisition. Tools like Public Market Research can help facilitate this, thus making Market Research important to acquisition. Further, a study by Steve Mills, Scott Fouse, and Allen Green (2011) reveals that a key characteristic of successful partnership, and by extension acquisition, between government and industry includes money, respect, communication, leadership, and clear process. Both of these prior research studies substantiate the assertion that communication is critical for a successful partnership and a successful acquisition.

Thus, it can be determined that the researcher’s approach of conducting a mixed methods research design to study the topic of DoD LEITS is unique. Further, a study that strives to recognize what components of the DoD services acquisition process are the most valuable, identify strengths that exist in the current government acquisition process for DoD LEITS, and gain greater insight into how Public Market Research impacts a LEITS acquisition appears to be the first study of its kind. This research builds on a relatively small body of academic research, assessed in the literature review, in the field of public administration and governance.
Chapter 4: Research Design

Qualitative Introduction and Methods

Introduction.

With the literature review complete, and reasonable confidence that an academic study tackling the topic has not been undertaken, the dissertation moves into the qualitative portion of the research design. Again, this dissertation does not have a goal of trying to reform or propose reform to the acquisition process, but instead purports to examine the process as it stands today and offer insight into the current process.

As such, the dissertation’s qualitative section strives to learn as much as possible about the current acquisition process from acquisition professionals’ perspectives. It looks to gain insight into what leads to a successful acquisition. In order to learn what makes an acquisition successful, we must first define success. Going back to the Definitions section of the dissertation, success is being defined as a Program that is awarded quickly, with no protest, and in which the option years are executed.

This perspective is garnered through an interview, which as a qualitative research method can gain insight into topics and generate data for analysis. Interview transcripts are then coded, from which insights and perspective are gained and can be assessed to allow common themes and trends to be identified, informing the quantitative portion of the study. The method for conducting the qualitative portion of this mixed methods study is reviewed in great detail in the subsequent section.

Method.

To conduct the qualitative portion of this mixed methods research design, the study utilized a four-phased process to conduct the interviews and gather data. The phases were:

1. Survey: In order to find participants for the qualitative method, the researcher surveyed a group of Contracting Officers in the DoD who had direct experience with the subject
Survey participants were selected as their names were attached to prior LEITS acquisition in a federal acquisition database. Participants who responded to the survey as willing to participate were invited to the interview portion.

2. Interview: the researcher conducted in-depth interviews with all participants to gather data for the qualitative method.

3. Code and analyze: the data gathered through the interviews was coded and analyzed to position the researcher to draw conclusions.

4. Draw conclusions: the researcher drew conclusions from the qualitative method that informed the quantitative method.

Phase 1: Surveying Possible Participants.

In order to study the acquisition process and gain insight into what makes an acquisition successful, from an acquisition professional’s perspective, finding acquisition professionals that were willing to share their perspectives was critical. To identify interview subjects, a survey was conducted.

The potential subjects for this study were very easily identifiable. All contracting actions engaged in by the US federal government have a Contracting Officer (KO) responsible for the execution. By law, only a warranted KO is capable of conducting a procurement or acquisition by expending public, or government, funds. Specifically, only KOs have authority to enter into, administer, or terminate contracts and make related determinations and findings. KOs may bind the Government, only to the extent of the authority delegated to them by their appointing authority. Information about KOs and the projects or programs they are responsible for is publicly available through the Federal Procurement Database System, commonly referred to as FPDS.
The data set used for the quantitative study had KOs associated with the actions or programs identified within that data set. Of the KOs listed, the following criteria were used to select the KOs that were initially surveyed for participation:

- Location and proximity to researcher’s home base to reduce travel costs. The researcher targeted people within 50 miles of the Washington, DC metropolitan area.
- Experience and number of actions associated with KO. KOs with two or more actions listed in FPDS were preferred and targeted for the survey.
- Agency/department represented by the KO. Only KOs associated with DoD were surveyed.
- Availability of full contact information. KOs whose contracting actions had full and complete records in FPDS were specifically targeted as their procurements would be a part of the quantitative data set, described later in the Quantitative section.

The availability of contact information was critical as emails were the primary means of contacting the possible subjects to participate via this first phase survey. Identified KOs and other contracting professionals were contacted via email. They received a simple survey in the email; the survey is in Appendix 2. This survey asked some very basic questions, five in total, and centered around the KO’s experience as it related to LEITS acquisition and trying to identify KOs that were willing to participate in an interview. That was, in fact, the final question in the survey and the most important. It was made clear that the interviews were going to be non-attributable and the identities of the participants would be protected. Survey distribution occurred at the beginning of 2018 (March, 2018). The survey was designed to take no longer than 5 minutes to complete. Of the 50 or so KOs that were surveyed, 14 responded and ended up agreeing to be interviewed.
**Phase 2: Interviewing Participants.**

Contracting professionals who returned the survey and indicated they participate in an interview were contacted between March, 2018 and April, 2018. The investigator interviewed each subject one on one and ask a series of loosely structured interview questions. There were 10 questions used as a starting point for conducting the interview. However, the researcher/investigator allowed the conversations to proceed organically, allowing the subject to respond in a complete, candid fashion. The 10 questions are located in Appendix 3, and included questions like: “what creative innovative means of contracting have you observed?” and “do you feel public Market Research helps make better acquisitions?” as well as, “do you feel the current acquisition process for services works? Why or why not?”

No names or other identifying personal information were captured in the interview. Instead, the investigator used only a Unique Identifier Number (UIN), a 4-digit number assigned by the investigator to each subject. This method of removing names and using a UIN increased confidentiality and anonymity.

These interviews were conducted in the time period between November 2018 and March 2019, one with each favorably responding contracting professional. The interviews were 30–90 minutes each. The interviews were conducted over the phone or in person. This was due to some interviewees being located in the Washington, DC area while others were not. Those located in and around the Washington, DC area were interviewed in person with those located outside the Washington, DC area being interviewed by phone. There was a near even split, with six being in person and nine on the phone. The Researcher found that the medium of conversation had little impact on the dialogue.

The researcher recognized that gaining and documenting consent is of the utmost criticality in conducting this research. For the survey and interview, the consent form was digitally provided prior to the survey. Subjects were asked to acknowledge receipt of the consent form, amounting to their reading,
understanding, and accepting of the terms of the consent form to take the survey. Given the subject matter, the interviewees’ expertise, and anonymity in the results, the conversation flowed well. The questions were asked of all participants, and the conversation moved very organically. The questions posed led to insights in different areas, and the interviewees’ expertise was demonstrated as the conversation effortlessly moved from one topic to another. The shortest conversations were thirty minutes, while some interviews extended over an hour and a half. No formal compensation was provided. Details of the interviews and the data that emerged are described, below.

Phase 3: Coding Qualitative Data, Analyzing the Coding, and Interpreting to Draw

Conclusions.

In this section, the process for how the qualitative data was coded, the analysis of the specific codes and the data supporting those codes, and interpretation of that data will be conducted. Through the coding process, the results from the interviews were analyzed and commonalities and themes were extrapolated. This analysis was necessary to allow for interpretation within the qualitative portion of the study and enabled the drawing of conclusions to inform the quantitative portion.

Once interviews were completed, they were immediately transcribed, coded, and the raw data as well as the coded data was stored within a secure database on the investigator’s hard drive, an encrypted Seagate 1.5TB external hard drive. As mentioned above, all links to the subjects’ personal information were removed from the record to preserve anonymity, using only the subject’s UIN.

The process for coding the data was rooted in grounded theory, using a line by line approach whereby the researcher developed categories of coding as the interview results or notes were being read after conducting the interview (Hesse-Biber, 2017). A two phase approach emerged for the coding process within the qualitative study. The first phase was to review all results and notes from the interviews. Initial codes, that were literal, were used for transcribing the interview results and notes. The
second phase refined those literal codes into more “focused” and “analytical” categories (Hesse-Biber, 2017). These analytical categories formed the basis of the researcher’s coding of the qualitative data.

Each unique comment relative to a specific topic broached by the interviewee was given an initial, literal code. Based on the information in the literature review, as well as the researcher’s personal experience, some topics and themes were expected to be broached through the interviews. These topics or themes had more focused, analytical codes that were preplanned. Codes for terms like Market Research or Protest were expected and given very simple analytical codes, MR and Prot, respectively. Where an interviewee mentioned MR or Prot, his/her comment was denoted with the applicable analytical code. When an interviewee mentioned one of these terms, and then extrapolated with perspective or points about that term, it was noted with a code. In some cases, analytical dimensions were added when the extrapolation of the interviewee warranted that level of detail.

Other data points or perspective from the interviewees were provided that were unanticipated and were outside the expected topics. These data points resulted in the emergence of other themes within the qualitative study. Themes were selected based upon the frequency with which interviewees made comments or similar observations; if a similar comment or observation was noted across the interviews more than three times, it rose to the level of having its own analytical code. As such, those were also given unique analytical codes as well. As an example, where “Culture” was mentioned, it was given a code of “Cul.”.

When the same, or nearly the same, comment was made by an interviewee, the same code was given across all respondents and interviews. After all comments from the interviews were coded and ported into an Excel file, a pivot table was formed to tally, across all the interviews, the most commonly referenced comments, items, and themes. Given that point in the research, comments were being
amalgamated so as to draw conclusions which could inform the quantitative portion of the mixed methods study. The results of the analytical coding within the qualitative investigation are show below:

Table 1. Results of Qualitative Investigation

<table>
<thead>
<tr>
<th>Data</th>
<th>Code</th>
<th>Count of Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market Research Positive Reference</td>
<td>MR</td>
<td>25</td>
</tr>
<tr>
<td>Training any reference</td>
<td>T</td>
<td>24</td>
</tr>
<tr>
<td>Process negative reference</td>
<td>Pro</td>
<td>20</td>
</tr>
<tr>
<td>Lack of Authority / Bureaucracy negative</td>
<td>A</td>
<td>17</td>
</tr>
<tr>
<td>reference</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protests reference</td>
<td>Prot</td>
<td>11</td>
</tr>
<tr>
<td>Requirements Definition negative</td>
<td>R</td>
<td>8</td>
</tr>
<tr>
<td>reference</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OTA referenced</td>
<td>OTA</td>
<td>5</td>
</tr>
<tr>
<td>Innovation referenced</td>
<td>Inno</td>
<td>4</td>
</tr>
<tr>
<td>Incentives and Rewards referenced</td>
<td>IR</td>
<td>4</td>
</tr>
<tr>
<td>Culture referenced</td>
<td>Cul</td>
<td>3</td>
</tr>
</tbody>
</table>

With the process around the data coding detailed and the coding itself completed, an analysis of the coding results and interpretation of that analysis took place. The most common topic in the course of the interviews was Market Research, MR. This was mentioned and discussed across all the interviews 25 times. The topic of training was broached by the interviewees 24 times. Process, specifically the largesse of paperwork and other administrative functions in DoD LEITS acquisition, was mentioned 20
times by the interviewees. Closely related, the lack of authority or complaints relative to the amount of bureaucracy were mentioned 17 times. Other topics were mentioned, including Protests (11 times), Requirements definition and the need for improvement (eight times), Other Transaction Authorities (OTAs) (five times), and innovation and incentives (four times). Finally, culture, was mentioned three times by the interviewees. As a result of this coding, data generated from the interviewees’ subject matter expertise can be analyzed around their views of the aspects of the LEITS acquisition process and the value and Market Research’s role in the process.

The most prevalent positive comment was related to the public Market Research. Mentioned 25 times across the 14 interviews, the interviewees felt public Market Research was a value adding component of the DoD services acquisition process and one that led to successful acquisitions, especially around LEITS. A specific comment about the value of Public Market Research was: “Public Market Research is vital to running a leading edge IT acquisition. We as acquisition professionals are not the experts … industry is. The communication with industry in a fair and transparent manner is vital” (D004). Echoing that sentiment was another interviewee who said, “Industry acts as subject matter experts around this requirements … Why would we not want their input, perspective, and help in crafting requirements? … We need more exposure to best practices and Public Market Research is a fantastic tool to use” (H008). Another comment contributing to the qualitative model’s data around Public Market Research was, “Government needs to do a better job interacting within industry. …. Public Market Research is a great tool [for that]. Providing feedback from industry is critical to government learning” (G007).

Another form of Public Market Research that was discussed by some interviews was the industry day. An industry day is an opportunity for any member of industry (i.e. the private sector) to attend an information session that is hosted by an acquisition professional. Ideas can be exchanged there
providing another conduit for industry to interact with the government, provide market information, and learn about a procurement. Several interviewees pointed to this practice as being a form of market research, a positive for both industry and government, and value adding to the overall process. One respondent went so far as to say, “Industry days are a very important tool in our tool kit.” (E005) Another echoed that exact view calling industry days “critical”. (I009) That same respondent also commented that, “Good process can take time. However, the time lost in the beginning planning and interacting with industry can be of great benefit later in the acquisition.” (E005)

Another excellent data point from the qualitative that illustrates the importance of Public Market Research was made by one respondent who is a senior level government administrator. This individual felt Public Market Research was so important, and used so infrequently, that he called its use “innovative.” (K011). He maintained that for something to be innovative, it did not need to be new, it just needed to be different and effective. “Public Market Research, utilizing Sources Sought, Requests for Information, and Draft RFPs adds tremendous effectiveness to the process” (K011). Another interviewee independently concurred, saying, “Issuing drafts on FBO (FedBizOps, the public facing government contracting portal) is the way to go” (L012).

Further yet, several interviewees cited “poor requirements” as being a factor in a poor acquisition or program. Eight of the respondents mentioned “poor requirements definition” as a reason they felt an acquisition or a program was done poorly. Numerous reasons were given as to why requirements may have been poorly defined. They ranged from poor training of requirements definers (D004, F006) to lack of technical understanding in requirements definers (B002). However, the interviewees concurred that Public Market Research, and giving industry and potential responders to the requirement and opportunity to review, can be a value adding procedural step in the acquisition of LEITS.
In short, the interviewees felt strongly there was significant value in Public Market Research. Two quotes from interviewees sums this up well: “Transparency and communication with industry are key in running good acquisitions. Public Market Research is a great tool to support that interaction” (H008). “Good [public] Market Research can make a huge difference in the outcome of a program.” (J010) The ability of Public Market Research to provide a fair and open medium of communication around requirements to industry partners was viewed as a major positive and benefit of Public Market Research.

At the same time, several topics came up as aspects of the DoD services acquisition process that were not always working well or adding value. These included a lack of authority to make decisions and the high amount of bureaucracy in the decision-making process, all coded as “A” in the qualitative coding for “lack of authority”. With “A”, the interviewees felt they did not have the authority they needed or deserved to make the decisions. The expressed strong desire to have “decision making authority…pushed down…allowing increased spending limits at lower levels of authority to enable increased speed and effectiveness in acquisition” (F006). Another interviewee independently responded similarly, saying, “Delegations (of authority) need to be pushed lower…as currently personnel are not empowered enough to make decisions” (L012). In order to move with the speed and confidence required to produce what they believed would be successful LEITS acquisition, they needed and desired more authority. Many respondents used the term “agile” or “increased agility” to capture their desire to move more quickly with greater authority (A001, B002, G007, L012). They expressed a desire to “evolve with the change of speed necessary to keep up with adversaries and mission” (B002).

This feeling was closely tied to the level of bureaucracy, which the interviewees recognized as being necessary, but excessive. The “silos within the DoD were causes of significant delays,” said one interviewee (H008). Further, the “size of the bureaucracy in the DoD can limit the affect the executives
and contracting professionals can have on outcomes and the mission” (D004). Though bureaucracy can create redundancies to limit single points of failure, the interviewees felt the DoD services acquisition process has too much bureaucracy. Tied very closely to the “lack of authority” data, an interviewee felt strongly that “the amount of reviews required to make a decision is problematic. … this is tied directly to the bureaucratic nature of the DoD…most programs should not be required to go all the way to an SES (Senior Executive Service Member)” (K011). A similar concern was expressed by an interviewee in that “there are too many non-value adding reviews that occur” (L012). It in the interviewees’ contention that the lack of authority and over bureaucratization of the DoD limits effectiveness and efficiency, ultimately adversely affecting the success of the DoD services and LEITS acquisition.

Protests, coded “P” came up frequently (11 times), and were generally regarded in a negative fashion. “Protests are real … and a threat,” commented one interviewee (E005). Though the interviewees did recognize that some protests have grounds, there is a general perception that industry protests frivolously, and to the detriment of the DoD services and LEITS acquisition process. That interviewee went on to comment, “Protests do not cost enough to industry … the cost is too low to industry to file a protest” (E005). However, on the whole, the fifteen interviewees revealed they personally had been part of very few protests. “There are actually very few protests that occur compared to the volume of acquisitions that are actually performed,” one interviewee said (G007). Most interviewees had been a part of only one protest, with only two interviewees having been personally involved in more than one. Further, none of the interviewees had been a part of a protest that was upheld by an agency or GAO. In fact, one interviewee noted that “GAO 237SP shows that many protests are unsuccessful” (J010). The vast majority of contracting actions seem to go through without a protest. This reinforces a view that the fear of protests from uneven communication should not be a factor for limiting communication with industry. Provided the communication is open, fair, transparent, and
consistent, like that conveyed through Public Market Research, the fear of opening an acquisition up to protest risk should not be something felt by a contracting professional. In fact, Public Market Research should have the opposite effect. One interviewee stated, “The use of Public Market Research resulted in less time to award and fewer protests,” in her experience (H008).

Simultaneously, some aspects of the process that were noted as not working by some interviewees were noted as working well by others. Two good examples are seen in the view of the process itself by the interviewees and training. The process itself was seen in both a positive and negative light. Some interviewees felt the process, though long, adds value in that it creates redundancies, is replicable, and is predictable. “There is great consistency in the process,” noted two respondents, independent of one another, “which allows for predictability in the process” (A001, F006). “The basic process works,” stated two others (D004, K011). Further, one interviewee noted that s/he felt that the, “current process affords for flexibility which can inject innovation into the process. … Parts of the FAR allow for innovation” (G007). Another noted that, “Someone can seek a waiver and deviate from the process” (L012). These facets of the DoD services acquisition process, they felt, can be viewed as being positive.

However, on the other side, the process is seen as inflexible, unable to accommodate speed and mission need, and unnecessarily long while not adding enough value within the DoD services acquisition process. “The process is great for what it is meant to do, which is buy major weapons systems ... but the process often needs to work differently than stated to accomplish mission need” (J010). “The process often does not fit mission needs. … The process needs to be flexible to support non-traditional contractors” (B002). The same interviewee who felt the basic process worked also noted that “some FAR processes are unattainable and, thus, do not add value” (D004). Others echoed that
perspective, saying that the process is often focused on the wrong things, is too documentation driven and not enough results driven (L012).

Some felt training was lacking, while others felt the training was adequate. Some interviewees felt the training they and their counterparts received was “more than adequate for the work we are doing” (E005). They felt their training was a strength and enabled them to achieve success in the DoD services acquisition process.

At the same time, other interviewees felt the training they received was inadequate for them to achieve success in acquisition and did not inform them enough on the latest best practices and innovations. “There needs to be better education, better handbooks, and more proliferation of best practices,” shared one interviewee (G007). One interviewee responded, “Workforce development and training needed to be enhanced” (B002, D004). “The interactive nature of the training and hands on education needs to be improved,” was shared by another (C003). Dovetailing with that comment, more and formal mentorship programs, between more senior and junior or mid-level employees where experiences are shared, were suggested (I009). One interviewee felt strongly that certifications in the relevant fields should be sought by all and that the attaining of certifications should be promulgated by the DoD (F006). Additionally, a fascinating observation that the people coming up with requirements also need training and education around the acquisition process was made by interviewees. They are, “critical stakeholders in the process and need training as well to come up with proper requirements that can be successfully acquired” stated one interviewee (L012).

Commentary about other aspects of contracting and the process that lead to greater success in the DoD services acquisition process were discussed. Contract type was one area of emphasis for the interviewees. “Choosing the right contract type to fit the requirements is vital,” said one interviewee (D004). Of the choices of contract type between “cost plus” or cost reimbursable, time and material
(T&M), and firm fixed price (FFP), it was generally agreed that the simpler the contract type used (i.e. T&M), the greater the chance of success. However, one interviewee felt that “the increase use of FFP type contracts is a good thing as that puts less risk on the government” (E005). This desire to shift the burden of risk from government to industry can help explain why there has been an increase in FFP type contracts for LEITS acquisitions.

The use of a contract vehicle to acquire, with pre-awarded and negotiated terms and conditions to purchase services, also increased the chances of success as defined by the dissertation according to interviewees. One interview felt that “the use of contract vehicles saved a great deal of time … but the proliferation of vehicles can be problematic” (I009). According this interviewee, vehicles have clear benefit by moving acquisition along more quickly, but like many things, there can be too much of a good thing, especially when there are too many choices for one to choose from.

Tying to the previous research by Wilhite and colleagues (2013), the length of the contract was discussed, with the shorter the length sometimes being easier it is to award and more likely to be successful. The shorter the contract is, sometimes the less complex the requirements are, and thus, it is easier to award. Tied to this theme of less complexity, the dollar value was also discussed as playing a role in the success. The lower the dollar value, and the simpler the requirement, the greater chance of success. Pilot programs, Other Transaction Authorities (OTAs), and task order based competitions off contract vehicles were all mentioned as factors to potentially consider in the success of LEITS acquisition, and thus, in the quantitative section of the dissertation.

Additionally, the organization or service procuring was recognized by some interviewees who worked for multiple organizations. Some DoD services do acquisition better than others, according to the interviewees, so it is possible for that to play a role in determining an acquisition’s success as defined by the dissertation. The interviewees were from a variety of DoD services, and from DoD
proper, Office of Secretary of Defense (OSD), and the joint environments. Many had worked at different services across their careers, some interviewees having careers spanning four decades of service. They observed that some services handle acquisition differently. As such, with different cultures around acquisition, different training programs, and different approaches to certain challenges, different results can be reached. One interviewee commented, “Each service has its own culture and unique way of doing business. Though at a high level there is parity, there are some subtle differences in services, and even locations within a service, that can effect outcomes” (A001). The impact for this dissertation is that different services, and even different commands or geographies within the services, can handle acquisition differently, adding variability a quantitative model.

Lastly, the competition type, with competitive contracts and sole source both leading to success, were broached by the interviewees as factors to consider in determining the success of an acquisition. It is no surprise that interviewees noted that “sole source acquisitions are faster than competitive,” (C003, D004, E005) and are more likely to yield success, according to the dissertation’s definition of success.

With this analysis and interpretation of the qualitative method complete, some trends emerged that will be explored in the Conclusions section.

*Phase 4: Drawing Conclusions of the Qualitative Method for use in the Quantitative Method.*

The final phase of the qualitative portion was to draw conclusions from those common themes to inform the quantitative study of this mixed methods approach. The analysis and interpretations from the qualitative portion of this mixed methods study is described, in detail, in the Data Analysis and Interpretation section of the dissertation.

In analyzing the feedback from the professionals interviewed via the coding and interpreting that was conducted, trends and conclusions emerge. Through the data analysis, the trends and conclusions within the qualitative study are informed. These qualitative conclusions have implications for the
specific topic and research questions of this dissertation, which pertained to Public Market Research’s impact on LEITS acquisition and the most value adding aspects of the acquisition process. Some of the major trends and conclusions that emerged included the following:

- Public Market Research is viewed positively and is critical in conducting an acquisition
- protests were not prevalent among those interviewed and were experienced infrequently
- successful protests were very rare and protests are infrequent
- lack of authority to make decisions and the high amount of bureaucracy slowed decision making in the process
- type of contract can play a role in the success of an acquisition
- use of a contract vehicle can speed up procurement
- the length of the contract can be a determining factor in how quickly something gets awarded
- the dollar value can also be determining factor in the success of an acquisition
- the organization could also play a role in determining how well an acquisition is conducted
- competition type may play a role in the outcome of an acquisition

Many variables emerged, informed by the qualitative study, which warranted testing and examination in the quantitative study to understand their effect on DoD LEITS acquisition. For the quantitative portion, one variable to be reviewed is Market Research. The data gathered in the qualitative method supports this examination as the need for public Market Research was supported by the belief that Market Research was a critical component of success. Market Research will be used as an independent variable.

Mentioned by the interviewees in the qualitative study, as well as by Wilhite (2013) et al., thus building on previous research, the quantitative portion will also take six other criterion and empirically test their statistical significance on measures of success for a DoD LEITS acquisition, as defined at the
beginning of the dissertation around efficiency and effectiveness. These variables are duration, competition type, contract vehicles, contract type, organization, and value. Variables that are indicative of efficiency and effectiveness, based on the dissertation’s definition of “success” are: days to award, protests filed, and option years being executed. Unlike with Wilhite et al.’s work, in which success was gauged by CPAR ratings, the researcher does not have access to the system that holds CPARS. As such, the publicly available data of days to award, protests filed, and option years being executed must be used.

Regrettably, the study and the data set built to support the quantitative method in the mixed methods study will not be able to be used to test the effect other qualitative findings, including: increased training and greater access to best practices or consistency in use of processes. Data that would capture these factors is not readily available to the researcher and would have to be constructed through further interviewing. This is largely due to the fact that information on training, or lack thereof, and access to best practices by contracting professionals is not available the public domain or at a scalable level. These details would have to be garnered through an interview process for ever sample, something government employees are, at time, reticent to provide. As a result, this is outside the scope of this dissertation and it will be one of the recommendations of this dissertation for continued and ongoing research in a manner that will allow for testing of hypotheses and research questions related to training and consistency of the application of the process in DoD services acquisition.

**Quantitative Introduction and Methods**

**Introduction.**

With the qualitative portion complete, the analysis and resulting conclusions from the qualitative can inform the quantitative. Again, this dissertation does not have a goal of trying to reform but instead offer insight into how to make the current process work successfully with the existing
process. As such, the dissertation’s quantitative section will strive to take what was learned in the qualitative section and test the anecdotal data empirically, in an effort to draw statistically significant conclusions about the factors in the current process that can enable successful DoD services and LEITS acquisition.

The quantitative portion of the mixed methods will consider the research questions and qualitative conclusions, form hypotheses, run tests, and interpret results to produce recommendations that can inform best practices and policies resulting in successful LEITS acquisition. The research questions are the following: Within the existing DoD contracting process, what sub-processes, specifically related to Public Market Research, increase the efficiency and/or effectiveness of cyber security, agile software development, and cloud migration services (LEITS) acquisition? And, what are the most value adding aspects in terms of efficiency and effectiveness; within the current acquisition process for LEITS?

In order to use quantitative methods and empirical data analysis to learn what makes an acquisition successful, a data set was developed. Then, after receiving the results of the qualitative portion of the research design to inform the quantitative, hypotheses were formed, questions were created, and tests determined for conducting the quantitative analysis. Upon running the tests as designed, the results were analyzed and interpreted, so that conclusions could be drawn to inform the DoD services and LEITS acquisition process moving forward.

Method.

To conduct the quantitative portion of this mixed methods study and generate the data required, conduct statistical tests, and interpret results so conclusions can be drawn, the method utilized was a five-phased process. The process for conducting the quantitative portion of this mixed methods study is build
the data set; consider the qualitative; form hypotheses, build questions, and determine the tests; run tests; interpret results from the tests.

**Phase 1: Building a Data Set.**

The first phase in this six-phase method is to build the data set. The researcher spent significant time developing a data set, based on publicly available procurement data, of recent DoD services acquisitions. A publicly available website referenced earlier, FPDS, was utilized to develop the data set. Many search criteria were entered and tried, but to get a sample of data large enough, the procurement dates of 2012–2016 were used with the keywords *cyber security*, *software development*, and *cloud* and, of course, within the DoD.

Once the raw data was pulled from the FPDS and gathered, the data set needed to be sanitized such that statistical analysis could eventually be performed. The sanitizing of the data required a great deal of formatting and smoothing. Some of the data also had to be recoded to allow for statistical tests, specifically categorical and dichotomous data. These variables were recoded into “dummy variables” or variables where numbers took the place of values (Abu-Bader, 2010). These included: contract vehicle, contract type, competition type, organization, and Public Market Research. Most notably, Public Market Research was a dichotomous variable; MR either occurred or did not occur in a given sample. As such, that was noted as “0” for not occurring and “1” for occurring in the data set. Further, some additional research was required to finalize certain records within the data set as gaps existed from the FPDS pull. Additional research was required to ensure that each record from FPDS was complete and consistent across all samples. As such, creating the data set was a complex, lengthy endeavor, but in the end, 114 samples were collected.
Phase 2: Using Qualitative Conclusions to Inform the Quantitative Tests.

Once the data set was complete, and the researcher was familiar with the many aspects of the data set, the qualitative portion of this mixed methods study was considered. It was the overarching research design that the qualitative portion would inform the quantitative. At this point, previous research and the findings from the qualitative portion of the mixed methods approach were analyzed and interpreted within the context of the quantitative data set. Then, ways to incorporate the findings of the qualitative into the quantitative were devised. Data relating to the themes and conclusions that emerged from the qualitative study were identified and used to conduct the next phase of the quantitative portion of the mixed methods approach. Again, these themes and conclusions emerging from the qualitative study were:

- Public Market Research is viewed positively and is critical in conducting an acquisition
- protests were not prevalent among those interviewed and were experienced infrequently
- successful protests were very rare and protests are infrequent
- lack of authority to make decisions and the high amount of bureaucracy slowed decision making in the process
- type of contract can play a role in the success of an acquisition
- use of a contract vehicle can speed up procurement
- the length of the contract can be a determining factor in how quickly something gets awarded
- the dollar value can also be determining factor in the success of an acquisition
- the organization could also play a role in determining how well an acquisition is conducted
- competition type may play a role in the outcome of an acquisition

Based on the dissertation’s Research Questions, and inputs from previous research and the qualitative portion of the mixed methods approach, this quantitative portion of this mixed methods
dissertation assessed the impact of Market Research and other variables on a series of dependent variables (DVs). The DVs, derived from the definitions for *efficiency* and *effectiveness* at the onset, included the following:

1. Days to Award (RFP release to RFP award) (continuous)
2. Was Protest Filed (categorical)
3. Was Protest Upheld (found to have merit and government took corrective action or protest was ruled to be upheld) (categorical)
4. Were Option Years Executed (categorical)

These DVs were chosen as they were publicly available, were provided for any acquisition, and were consistent with the definitions used at the onset of dissertation to define *efficiency*, *effectiveness*, and *success*. Given their ubiquitous nature, consistency in use, and simplicity in application, they are good measures of determining if an acquisition was successful. Further, the previous study by Wilhite (2013) et al. was also considered in the quantitative model.

The Quantitative Analysis assessed IVs’ effect on various DVs. The IVs, drawn from the aforementioned themes and conclusions from the qualitative, included: (1) contract vehicles, (2) contract type, (3) competition type, (4) contract award year, (5) duration, (6) organization, (7) value, and (8) Public Market Research utilized or not, which is a categorical variable. This data were selected, among many potential pieces of data and variables, for numerous reasons.

The first compelling reason for utilizing this data stemmed from the qualitative study. As stated already, the purpose of the qualitative study was to inform the quantitative. As such, the qualitative portion of this mixed methods approach, where contracting SMEs were interviewed, identified many of these IVs as factors that influence the success of an acquisition as defined by the parameters of the study. Harking back to the definitions section, *success* is defined as achieving efficiency and
effectiveness. Specifically, Public Market Research was targeted due to the large amount of input received through the qualitative portion. Additionally, the use of a contract vehicle, contract type, year of contract award, and the service/organization within the DoD were also referenced over the course of the qualitative study by the contracting SMEs as having potential impact on the success of a LEITS acquisition.

Contract vehicles can streamline certain aspects of an acquisition which can increase the speed of award and, thus, the success of the acquisition. Contract types can also affect the speed of award as firm fixed-price contracts can be more complex and carry more risk for the offeror, where cost reimbursable contracts carry more risk for the government/DoD. This risk can influence the speed of award and the success of the acquisition, as defined in this dissertation. The year of award, and the geopolitical landscape and mission needs, can be indicative of the urgency of a requirement being awarded. The specific service can also have an effect on the success of a LEITS as the components within the DoD can acquire LEITS differently.

Further, from both the qualitative study and previous research, other factors like dollar value, type of competition, duration were identified as key indicators of acquisition success. Dollar value is a strong indicator as people are likely to protest over high dollar value procurements. The type of competition can be an influencer of success in an acquisition. If it is a competitive contract, those will take longer to be awarded than non-competitive contracts, due to the lengthy process and intense competition in this sector. Duration is also a potential indicator. This is due to the fact that if a contract is for a longer period of time, competitors can get locked out, thus making them more likely to protest and prolong an acquisition. The Wilhite, et al. (2013) study supported these three variables usage in the quantitative method’s models.
Additionally, the investigator’s experience was utilized in validating the selection of the above factors as key factors influencing how long acquisitions take, whether there are protests or not, and if option years are exercised or not. The variables and factors identified above, by the qualitative study and previous research, were justified in selection by the researcher through his experienced opinion.

A final reason for this data being selected as factors in the quantitative study was, as has already detailed, the data being readily and publicly available in the government database FPDS.gov. Given availability of the data, it was compiled into a data set. This results in the data being studied more easily.

**Phase 3: Forming Hypotheses, Building Questions, Determining Quantitative Tests.**

With themes and conclusions from the qualitative portion brought over and considered, the researcher formed hypotheses, built questions, and determined tests to assess the hypotheses, helping to answer the research questions. The researcher formulated hypotheses and questions that allowed for common themes and inputs from the qualitative study to be tested. Then, regression models were developed that test the data set around the hypotheses and questions, which were based upon the themes and conclusions emerging from the qualitative study.

The general hypothesis is that the use of Public Market Research will have an effect on or help predict the success of an acquisition. This hypothesis is aligned to the previously stated hypothesis stemming from the Research Questions. The use of Public Market Research on LEITS requirements increases the fair, open, and evenly distributed interaction with industry and with the increase in communication, there will be a corresponding increase in the efficiency and effectiveness of LEITS acquisitions. The quantitative portion is expected to demonstrate that increased communication with contracting professional and industry, through Public Market Research, serves a benefit to acquisition and will result in positive improvements to mission through more efficient and effective acquisition of LEITS.
The variables chosen to be indicators of efficiency and effectiveness were based on the definitions selected at the onset of the dissertation. Again, efficiency for the purposes of this research is defined as taking as little time as possible from RFP release to RFP award. This stems from a natural logic that when something takes less time to procure, if it more efficient. Effectiveness, for the purposes of this research, means that there is both a lack of protest in the award decision as well as the execution of option years on an awarded contract. Once more, this definition stems from common-sense concept that if a procurement does not have a protest and can be executed, as well as having the options years granted, it is an effective program. Further, these were selected as definitions for the terms as these were the best publicly available indicators of success on a program and are a good proxy to publicly available performance data. These publicly available variables, aligned with the definitions for efficiency and effectiveness, were defined as:

- Fewer days to contract award
- No protests (0 or No) being filed
- No protests (0 or No) being upheld
- Options years being executed (1 or Yes)

These measures of efficiency and effectiveness, or *success*, are consistent with the definition of success posited at the beginning of the dissertation.

To test for an effect on the four DVs, eight IVs were selected. The IVs, drawn from the aforementioned themes and conclusions from the qualitative, included: (1) contract vehicles, (2) contract type, (3) competition type, (4) contract award year, (5) duration, (6) organization, (7) value, and (8) Public Market Research utilized or not, which is a categorical variable. This data were selected, among many potential pieces of data and variables, for numerous reasons detailed in the previous section. These eight IVs will be used consistently across all tests.
To assess the eight IVs, including Market Research, on the four DVs, there were four tests conducted. SPSS 24 was utilized to conduct the analyses. These regressions were selected following a process of the following:

- Consider the desired insights to be gleaned by the test
- Assess the type of data and variables within those research questions (i.e. continuous, categorical, etc.) and select IVs and DVs
- State the specific, succinct research question being analyzed
- Determine the best test given the type of data and the research questions being posted
- Test the assumptions required to run the selected test
- Run test

One multiple linear regression, due to the continuous nature of the DV (Days to Award), and three logistic regressions, due to the categorical nature of the three other DVs (Was Protest Files, Was Protest Upheld, Were Option Years Executed), were conducted.

*Test 1: Days to Award.*

In this test, the researcher tested the eight established IVs against one DV, Days to Award, through a multiple variable regression. This test is looking to determine what IVs or predictors/factors have the greatest ability to predict the DV or criterion.

With that, the research question at hand is the following: What set of the following predictors/factors best predicts the Days to Award for a procurement? Options considered were Contract vehicles, Contract type, Competition type, Contract Award year, Duration, Organization, Value, and Public Market Research utilized (Y/N). It is the researcher’s hypothesis that Market Research will have the greatest ability to predict days to award. If market research is utilized, there will be fewer days to award for a LEITS acquisition.
To test the hypothesis that Market Research has an effect on the success of an acquisition, we would hope to see a statistically significant relationship of the Market Research IV on the Days to Award DV, such that Market Research predicts well the Days to Award.

With the Days to Award DV/criterion, smoothing of the data was required. As the criterion was captured in its raw form, did not present itself in a normal distribution. As such, Natural Logarithmic (LG10) smoothing was necessary to get the data in a form suitable for multiple variable regression.

*Test 2: Was Protest Filed.*

In this test, the researcher tested eight established IVs against one DV, was a protest filed, through the use of a logistic regression. The tests were conducted to determine which IVs or predictors/factors have the greatest ability to predict the DV or criterion of was a protest filed.

The research question at hand is the following: What set of factors correctly predicts whether a protest is filed? Factors considered were: (1) contract vehicles, (2) contract type, (3) competition type, (4) contract award year, (5) duration, (6) organization, (7) value, and (8) Public Market Research utilized (Y/N). The resulting hypothesis is that the presence of Market Research should enable the prediction of a protest. We expect to see that as there is a presence of Market Research, that there will be fewer protests filed.

To test the hypothesis that Market Research has an effect on the success of an acquisition, we would hope to see a statistically significant relationship between Market Research IV and was a protest filed DV, such that Market Research predicts if a protest was filed. We will accomplish this through a logistic regression.
**Test 3: Was the Protest Upheld.**

In this test, the researcher tested only one IV against one DV, was a protest upheld, through a logistic regression. This test determined if the IV in question, use of Public Market Research, has an ability to predict the DV or criterion.

With that, the research question at hand is the following: Does MR correctly predict whether a protest is upheld? The factor considered was: Public Market Research utilized (Y/N). The hypothesis is that the use of Public Market Research will help predict if a protest is upheld. If there is Public Market Research used, the protests will not be upheld but will instead be denied.

To test the hypothesis that Public Market Research has an effect on the success of an acquisition, we would hope to see a statistically significant relationship of the Public Market Research IV on the Was the Protest Upheld DV, such that Public Market Research predicts well if the Protest was Upheld.

Of course, these data are only subject to the samples where a protest was filed, so the sample size is smaller. We will look to conduct a logistic regression to test this DV against the IV.

**Test 4: Option Years Executed.**

In the final test, the objective was to test the eight IVs against one DV, were option years executed, through a logistic regression. This assessment is looking to determine what IVs or predictors/factors have the greatest ability to predict the DV or criterion.

The research question at hand has been identified: What is the probability that Option Years Were Executed for a procurement when knowing the following: (1) contract vehicles, (2) contract type, (3) competition type, (4) contract award year, (5) duration, (6) organization, (7) value, and (8) Public Market Research utilized (Y/N)? Stated differently, the research question can also read: What set of factors correctly predicts whether Option Years were Executed? Factors considered were: (1) contract vehicles, (2) contract type, (3) competition type, (4) contract award year, (5) duration, (6) organization, (7) value,
and (8) Public Market Research utilized (Y/N). The hypothesis is the use of, or presence of, Public Market Research will correctly predict if option years are executed in resulting LEITS programs. This is indicative of Public Market Research being an important and value-adding component of a successful LEITS acquisition process.

To test the hypothesis that Public Market Research has an effect on the success of an acquisition, we seek a statistically significant relationship between the Public Market Research IV and the Options Years being Executed DV, such that Public Market Research predicts well if the Option Years are Executed. We will look to conduct a logistic regression to test this DV against the IV.

**Phase 4: Conducting Regression Analyses to Derive Results.**

The next phase of the Quantitative study was to run the regression tests. Regression analyses in the SPSS 24 tool were conducted.

*Test 1: Days to Award.*

After an assessment of the assumptions, the data allowed us to run a multiple linear regression test. The objective of this test was to assess Days to Award as the criterion/DV against numerous IVs. Upon running a multiple linear regression test using the enter function with the eight IVs against the days to award DV, four factors were found to be significant contributors to the variance in days to award of LEITS. Those were duration, contract award year, competition type, and organization. The remaining IV/factors/predictors of contract vehicles, contract type, value, and public market research utilized (Y/N) were not significant contributors.

The summary below shows that the multiple correlation between all eight factors in the equation and Days to Award (Smoothed) is .598. The eight variables accounted for approximately 36% of the variance in Days to Award (Smoothed). This R Square is still similar to the Adjusted R Square (36% vs. 31%). This R Square change is still significant at alpha .05 (Sig F Change is .000).
Table 2. Test 1 Model Summary

Test 1 Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>F</th>
<th>Sig. F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.598&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.358</td>
<td>.309</td>
<td>7.307</td>
<td>.000</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Market Research/other used (Y/N), Contract Award Year, Value ($K), Contract Type, Competition Type, Duration 2, Organization Level 1, Contract Vehicle

b. Dependent Variable: SmoothDaystoAward

From this analysis, a Regression Equation emerges: $Y = -212.091 + (.006 \times \text{contract vehicle}) + (-.096 \times \text{contract type}) + (.130 \times \text{competition type}) + (.106 \times \text{contract award year}) + (.000 \times \text{duration}) + (.103 \times \text{contract award year}) + (-.041 \times \text{organization}) + (1.243E-8 \times \text{value}) + (-.037 \times \text{market research})$.

Again, the four IV/factor/predictor variables that were statistically significant were Duration, Contract Award Year, Competition Type, and Organization.

Table 3. Test 1 Coefficients

Test 1 Coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>Collinearity Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>-212.091</td>
<td>50.354</td>
</tr>
<tr>
<td></td>
<td>Contract Vehicle</td>
<td>.006</td>
<td>.007</td>
</tr>
<tr>
<td></td>
<td>Contract Type</td>
<td>-.096</td>
<td>.053</td>
</tr>
<tr>
<td></td>
<td>Competition Type</td>
<td>.130</td>
<td>.053</td>
</tr>
<tr>
<td></td>
<td>Contract Award Year</td>
<td>.106</td>
<td>.025</td>
</tr>
<tr>
<td></td>
<td>Duration 2</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Organization Level 1</td>
<td>-.041</td>
<td>.018</td>
</tr>
<tr>
<td></td>
<td>Value ($K)</td>
<td>1.243E-8</td>
<td>.000</td>
</tr>
</tbody>
</table>
a. Dependent Variable: SmoothDaystoAward

Given this analysis, we are seeing that the eight IVs/factors accounted for 36% of the variance in Days to Award (Smoothed) of the sample LEITS. Further, only four of those eight factors were found to have a level of significance. As such, we can say that the length of the contract, the year it was awarded, the organization it was awarded through, and the competition type under which it was procured can be used to predict, with some degree of confidence, the amount of time it takes to award a contract. Market Research was left out of the model and thus is not a statistically significant indicator of days to contract award.

The output shown in Table 3 provided estimations of the regression coefficients, standard errors of the estimates, t-tests that a coefficient takes the value zero, and Collinearity Statistics. The estimated regression coefficients are given under the heading “Unstandardized Coefficients B”.

For each of the IVs, the predicted change in the DV when the IV is increased by one unit, conditional on all the other variables in the model remaining constant, is analyzed. Specifically, the IVs that were found to be statistically significant in the model, referenced above, are analyzed. It is estimated that the Days to Award time is increased by .130 for every additional unit of Competition, provided that the other 7 IVs are similar. With a unit increase of Contract Award Year as the IV, Days to Award increased by .106 provided that the other 7 IVs are the same. Organizational Unit as an IV also revealed a decrease of .041 in Days to Award as organizations that were numbered more highly would take fewer Days to Award, provided that the other 7 IVs are similar. Given the categorical nature of the organizational unit variable, codes were assigned as: “1” for Air Force, “2” for Army, “3” for Defense or Joint, “4” for Marine Corps, and “5” for Navy.
The interpretation of regression coefficients associated with the dichotomous data of Market Research is also straightforward. The predicted difference in the DV between the two levels of dichotomous data for MR is observed. For example, here it is estimated that when MR is conducted, there is a decrease in Days to Award (.037). However, this is not at a level of significance (p = .571, p > .05).

Finally, the Coefficients table provides standardized regression coefficients under the heading “Standardized Coefficients Beta”. These coefficients are standardized so that they measure the change in the DV, in this case Days to Award, in units of its standard deviation when the IV increases by one standard deviation. The standardization enables the comparison of effects across IVs and reveals unique perspective.

In this test, increasing Contract Type by one standard deviation is estimated to increase Days to Award by 0.26 standard deviations. Increasing Contract Award Year by one standard deviation is estimated to increase Days to Award by 0.345 standard deviations. An increase by one standard deviation of Duration is estimated to increase Days to Award by 0.337 standard deviations. Finally, an increase in Organization Level by one standard deviation is estimated to decrease Days to Award by 0.23 (-.23) standard deviations. The set of beta-coefficients suggests that, after adjusting for the effects of other IVs, Contract Award Year has the strongest effect on Days to Award.

*Test 2: Was Protest Filed.*

After an assessment of assumptions, it was determined that the data would allow a logistic regression analysis. The objective was to test eight independent variables (IVs) against one dependent variable (DV), Was a Protest Filed. The logistic regression with eight IVs against the one DV of Protest Filed demonstrated a model that does not significantly predict the probability of a protest being filed. This is indicated by a level of significance that is over .05 (Sig. = .059).
Table 4. Test 2 Omnibus Tests of Model Coefficients

Test 2 Omnibus Tests of Model Coefficients

<table>
<thead>
<tr>
<th></th>
<th>Chi-square</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1 Step</td>
<td>14.985</td>
<td>8</td>
<td>.059</td>
</tr>
<tr>
<td>Block</td>
<td>14.985</td>
<td>8</td>
<td>.059</td>
</tr>
<tr>
<td>Model</td>
<td>14.985</td>
<td>8</td>
<td>.059</td>
</tr>
</tbody>
</table>

The below classification table shows that of the 95 samples in which no protest was filed, the model predicted 99% of the results. However, when a protest was filed, only 11% of the samples were predicted. Though this yields a total of 84% for the model. With the lack of statistical significance in the model, these factors are not good predictors.

Table 5. Test 2 Classification Table

Test 2 Classification Table

<table>
<thead>
<tr>
<th>Observed</th>
<th>Predicted</th>
<th>Percentage Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Was Protest Filed (Y/N)</td>
<td>0</td>
</tr>
<tr>
<td>Step 1</td>
<td>Was Protest Filed (Y/N)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Overall</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. The cut value is .500

With the “enter” function, only one factor emerged as a significant predictor of a protest being filed. Per Table 6, below, Competition Type was the only variable entered in the equation found to be significant. Competition Type (Wald = 4.474, p < .05) yielded a regression coefficient (B) of -1.389. In other words, this test yielded a result the Competition Type seems to have a negative effect on whether a protest is filed or not. Specifically, here we estimate that the likelihood of a protest being filed is decreased by 1.389 (-1.389) units for every additional unit of Competition, provided that the other 7 IVs are similar.
Table 6. Test 2 Variables in the Equation

Test 2 Variables in the Equation

<table>
<thead>
<tr>
<th>Step 1a</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract Vehicle</td>
<td>-.135</td>
<td>.097</td>
<td>1.931</td>
<td>1</td>
<td>.165</td>
<td>.874</td>
</tr>
<tr>
<td>Contract Type</td>
<td>-.421</td>
<td>.597</td>
<td>.496</td>
<td>1</td>
<td>.481</td>
<td>.657</td>
</tr>
<tr>
<td>Competition Type</td>
<td>-1.389</td>
<td>.657</td>
<td>4.474</td>
<td>1</td>
<td>.034</td>
<td>.249</td>
</tr>
<tr>
<td>Contract Award Year</td>
<td>.163</td>
<td>.289</td>
<td>.317</td>
<td>1</td>
<td>.574</td>
<td>1.177</td>
</tr>
<tr>
<td>Duration 2</td>
<td>.000</td>
<td>.000</td>
<td>.455</td>
<td>1</td>
<td>.500</td>
<td>1.000</td>
</tr>
<tr>
<td>Organization Level 1</td>
<td>-.345</td>
<td>.223</td>
<td>2.395</td>
<td>1</td>
<td>.122</td>
<td>.708</td>
</tr>
<tr>
<td>Value ($K)</td>
<td>.000</td>
<td>.000</td>
<td>3.098</td>
<td>1</td>
<td>.078</td>
<td>1.000</td>
</tr>
<tr>
<td>Market Research/other used</td>
<td>.722</td>
<td>.663</td>
<td>1.184</td>
<td>1</td>
<td>.276</td>
<td>2.058</td>
</tr>
<tr>
<td>(Y/N)(1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-325.174</td>
<td>582.756</td>
<td>.311</td>
<td>1</td>
<td>.577</td>
<td>.000</td>
</tr>
</tbody>
</table>

a. Variable(s) entered on step 1: Contract Vehicle, Contract Type, Competition Type, Contract Award Year, Duration 2, Organization Level 1, Value ($K), Market Research/other used (Y/N).

Given these results, we can determine that this test is not a good fit for predicting if a protest was filed on a LEITS acquisition.

Test 3: Was Protest Upheld.

In the third test, the researcher tested eight independent variables against one dependent variable, was a Protest upheld, through a logistic regression. Given the assessment of the assumptions, the data will not allow us to run a logistic regression analysis. However, a logistic regression could be attempted with the use of only one categorical IV, Public Market Research utilized (Y/N), on the categorical “Was the Protest Upheld” DV. With 19 samples observed in which Protests were filed, as those are the only samples that could support the “Was the Protest Upheld” DV, only one IV was used to support the Sample Size assumption requirement. The relevant research question at hand is the following: Does knowing the IV of Public Market Research utilized (Y/N) correctly predict whether a protest is upheld?
Unfortunately, the use of Public Market Research was not found to be a statistically significant predictor of whether a protest is upheld. The model did not indicate that Public Market Research was a significant factor (Sig. = .427).

Table 7. Test 3 Omnibus Tests of Model Coefficients

<table>
<thead>
<tr>
<th>Test 3 Omnibus Tests of Model Coefficients</th>
<th>Chi-square</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1 Step</td>
<td>.630</td>
<td>1</td>
<td>.427</td>
</tr>
<tr>
<td>Block</td>
<td>.630</td>
<td>1</td>
<td>.427</td>
</tr>
<tr>
<td>Model</td>
<td>.630</td>
<td>1</td>
<td>.427</td>
</tr>
</tbody>
</table>

The below classification table shows that of the 18 samples where protests were upheld, the model predicted 100% of the results. Yet, when a protest was not upheld, 0% of the samples were predicted. Though this yields a total of 94.7% for the model, the factor in this model does not appear to be good predictor.

Table 8. Test 3 Classification Table

<table>
<thead>
<tr>
<th>Test 3 Classification Table&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Observed Protest Upheld or Denied (Y/N)</th>
<th>Predicted Protest Upheld or Denied (Y/N)</th>
<th>Percentage Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>18</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Overall Percentage</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> The cut value is .500

Further, when entered into the model, Public Market Research was not found to be a significant predictor of a protest being upheld (p = .999, p > .05).

Table 9. Test 3 Variables in the Equation

<table>
<thead>
<tr>
<th>Test 3 Variables in the Equation</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
</tr>
</thead>
</table>

77
Test 4: Option Years Executed.

After an assessment of Assumptions, it was determined that the data would allow a logistic regression analysis. Again, the objective was to test eight independent variables against one dependent variable, were option years executed. The logistic regression with eight IVs against the one DV of Option Years Executed demonstrated a model that does significantly predict the probability of an Option Year being executed. This is indicated by a level of significance that is over .05 (Sig. = .004).

Table 10. Test 4 Omnibus Tests of Model Coefficients

<table>
<thead>
<tr>
<th>Step</th>
<th>Chi-square</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step</td>
<td>22.561</td>
<td>8</td>
<td>.004</td>
</tr>
<tr>
<td>Block</td>
<td>22.561</td>
<td>8</td>
<td>.004</td>
</tr>
<tr>
<td>Model</td>
<td>22.561</td>
<td>8</td>
<td>.004</td>
</tr>
</tbody>
</table>

With the eight factors in the analysis, the likelihood-ratio is 12.0 and the proportion of variance in the criterion due to this factor ranges between 18% and 67%.

Table 11. Test 4 Model Summary

<table>
<thead>
<tr>
<th>Step</th>
<th>-2 Log likelihood</th>
<th>Cox &amp; Snell R Square</th>
<th>Nagelkerke R Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12.024a</td>
<td>.181</td>
<td>.686</td>
</tr>
</tbody>
</table>

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.
Further, the results of this model are significantly different than the expected population’s model (Sig. = 1.0). Given this, the model is a good fit of the population.

Table 12 Test 4 Hosmer and Lemeshow Test

```
<table>
<thead>
<tr>
<th>Step</th>
<th>Chi-square</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.282</td>
<td>8</td>
<td>1.00</td>
</tr>
</tbody>
</table>
```

The below classification table shows that of the 109 samples in which option years were executed, the model predicted 100% of the results. Yet, when option years were not executed, 50% of the samples were predicted. This yields a total of 98.2% for the model. As such, these factors in this model appear to be good predictors.

Table 13. Test 4 Classification Table

```
<table>
<thead>
<tr>
<th>Observed</th>
<th>Predicted</th>
<th>Percentage Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Option Years Executed (Y/N)</td>
<td>0</td>
</tr>
<tr>
<td>Step 1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Overall</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

a. The cut value is .500

However, the results of the enter-method logistic regression reveal that no individual factors were significant predictors of an option year being executed; no single factor emerged as a significant predictor a protest being filed. This is demonstrated by no individual factor in the model possessing a significance below .05.

Table 14. Test 4 Variables in the Equation

```
<table>
<thead>
<tr>
<th>Step 1a</th>
<th>Contract Vehicle</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>.018</td>
<td>.198</td>
<td>.008</td>
<td>1</td>
<td>.928</td>
<td>1.018</td>
</tr>
</tbody>
</table>
```
### Phase 5: Interpreting the Results of Quantitative Study and Drawing Conclusions.

The final phase of the quantitative portion of the mixed methods study was to interpret the results of the tests and draw conclusions. The researcher interpreted the results of quantitative model in an attempt to draw conclusions relative to the efficacy of the qualitatively observed themes. Conclusions were drawn based on the quantitative tests to support or deny the qualitative assertions. From there the researcher looked to make recommendations around the processes to be used in cyber acquisition. The assessment, conclusions, and recommendations from the tests are detailed in the Quantitative Data Analysis and Interpretation section of the dissertation. Resulting conclusions and recommendations from the quantitative study are in the Summary of Quantitative Conclusion section.

**Test 1: Days to Award Results and Conclusions.**

In analyzing the results of this first round of statistical tests, a multiple linear regression of the 8 IVs, including the one IV which was the focus of the hypothesis, were utilized against the DV of Days to Award. It was determined that this test does not demonstrate that Public Market Research is a good predictor of the days to award in a LEITS acquisition. Public Market Research, contrary to the hypothesis, was found to be a poor predictor of days to award in this model and with this LEITS data, accounting for little variance in Days to Award.
However, it was determined that Duration, Contract Award Year, Competition Type, and Organization have a statistically significant effect on predicting the days to award for LEITS acquisitions in the data set. It is estimated that the Days to Award time is increased by .130 for every additional unit of Competition, provided that the other 7 IVs are similar. Additionally, when examining standardized coefficients, increasing Contract Type by one standard deviation is estimated to increase Days to Award by 0.26 standard deviations. This would seem to indicate sole source contracts, the third and highest unit of competition, would take the longest to award, based on the interpretation of the coefficient. Small business set-asides would be the competition type that leads to quickest award followed by full and open. A possible interpretation is that small business set-aside competition generally have less complex requirements and are less demanding in terms of the response to the requirement. Thus, they are easier to evaluate and award, taking less time and fewer days to award. Full and open competition can be very demanding and time consuming on both the response side and the evaluation side. Sole source contracts can be as well since they are paperwork intensive to provide justification and require much review and approval to move forward, increasing the amount of time and number of days to reach award. The unit of influence is so small, however, that from a pragmatic perspective this could potentially be negligible. Further, the ordering of the categorical data may have influenced the test’s result.

With a unit increase of Contract Award Year as the IV, Days to Award increased by .106 provided that the other 7 IVs are similar. When reviewing the standardized coefficient, increasing Contract Award Year by one standard deviation is estimated to increase Days to Award by 0.345 standard deviations. An interpretation for this quantitative finding could be that some contract award years were very competitive leading to more responses to be evaluated and more days to award being needed. Another interpretation is that there may have been a decrease in budget and this could have
increased competition and increased the number of days to award. These are historic views and interpretations, however, and more analysis to confirm.

Organizational Unit as an IV also revealed a decrease in Days to Award, as organizations that were labeled with a higher categorical variable would take fewer Days to Award, provided that the other 7 IVs are similar. Increasing Organization Level by one standard deviation is estimated to decrease Days to Award by 0.23 (-.23) standard deviations. Further, the set of beta-coefficients suggests that, after adjusting for the effects of other IVs, Contract Award Year has the strongest effect on Days to Award. Given the categorical nature of the organizational unit variable, codes were assigned as: “1” for Air Force, “2” for Army, “3” for Defense or Joint, “4” for Marine Corps, and “5” for Navy. Thus, it could be interpreted that the higher numbered services in the data set took less time to award and fewer days to award contracts. However, the ordering of the categorical data may have influenced the test’s result.

When analyzing an increase by one standard deviation of Duration, the corresponding observed effect is estimated to be an increase in Days to Award by 0.337 standard deviations. This can be interpreted as the longer a contract is being awarded for, the longer it will take to be awarded. This is consistent with the qualitative and make sense as it was previously concluded that the duration of a contract can influence the time it takes to award, or the days to award.

All of these interpretations, when assessed fully and accounting for possible biases, offer valuable observations and potential conclusions from this test. These observations and conclusions will inform the overarching conclusions to both the quantitative section as well as the overall dissertation.

*Test 2: Was Protest Filed Results and Conclusions.*

In analyzing the results of the second round of statistical tests, a logistic regression of the eight IVs, and the one IV which was the focus of the hypothesis, were utilized against the DV of Was a Protest Filed. It was determined that this test does not demonstrate that Market Research is a good
predictor of whether a protest is filed in a LEITS acquisition. Market Research, contrary to the hypothesis, was found to be a poor predictor of the presence of a protest in this model and with this LEITS data accounting for little variance in whether a protest is observed. Only one IV was found to be a statistically significant predictor of the presence of a protest: Competition Type. Competition Type (Wald = 4.474, p < 0) yielded a regression coefficient (B) of -1.389. In other words, the Competition Type seems to have a negative effect on whether a protest is filed or not; specifically, for every unit of increase in Competition, there is a decrease of 1.389 in a protest being filed. This make sense as in the quantitative data coding, a small business set-aside competitive competition type was coded “1”, an unrestricted competition type was coded “2” and a sole source was coded “3”. Therefore, as competition units increase towards a sole source, protest likelihood decreases as it would be very unlikely that a non-competitive contract would have a protest filed. The very nature of a non-competitive contract, being that it is awarded directly to a company and not competed, would mean that there is a negative effect on a protest being filed. Competition Type was the only variable entered in the equation that was statistically significant thus is the only variable which can be analyzed and interpreted at a level of statistical significance.

Test 3: Was Protest Upheld Results and Conclusions.

In analyzing the results of this third test, a logistic regression of the IV Public Market Research, which was the focus of the hypothesis, was utilized against the DV of Was a Protest Upheld. It was determined that this test does not demonstrate that Public Market Research is a good predictor of whether a Protest Was Upheld or not in a LEITS acquisition. The use of Market Research IV was not included in the equation and was not found to not be significant (Sig. = .427). Given this lack of significance, it can be concluded that Public Market Research in this model is not a good predictor of
determining if a protest is upheld in a LEITS acquisition. However, the one instance where a protest was upheld, Public Market Research, was not utilized.

**Test 4: Option Years Executed Results and Conclusions.**

In analyzing the results of the fourth and final set of statistical tests, a logistic regression of the eight IVs were utilized against the DV of Were Option Years executed. It was determined that this test does not demonstrate that Public Market Research is a good predictor of whether option years are executed or not in a LEITS acquisition. In fact, Public Market Research was found to be a poor predictor of the option years being executed in this model, with the collected LEITS data accounting for little variance in if option years were executed. Though the model was found to have a level of significance, no IVs were found to be statistically significant.

**Summary of Analysis and Interpretation, and Conclusions of the Quantitative Method.**

In summary, the tests ultimately did not offer strong statistical support for the assertion that Public Market Research is a significant contributor to the success of an acquisition, with success defined as few days to award, no protests being filed, and options years being executed. Other variables, like Duration, Contract Award Year, Competition Type, and Organization were found to be more statistically significant contributors to these IV/predictors, specifically Days to Award, than Public Market Research. In none of the four tests did Public Market Research appear to be a statistically significant predictor of any of the four DVs that were defined as being indicators of successful LEITS acquisition.

However, this does not mean that useful information pertaining to the study of DoD services acquisition, specifically the role of Public Market Research in the LEITS acquisition process and the most value adding components of the LEITS acquisition process, cannot be drawn. There are conclusions that can be taken away from the quantitative study that are germane to the topic and purpose
of the dissertation. It was observed that Duration, Contract Award Year, Competition Type, and Organization have a statistically significant effect on predicting the days to award for LEITS acquisitions in the data set. It was also observed that in the one instance where a protest was upheld, Public Market Research, was not utilized. Finally, Competition Type was found to be a statistically significant predictor of the presence of a protest, which is a logical conclusion given it would be very unlikely that a non-competitive contract would have a protest filed. These conclusions prove valuable when summarizing the outcomes of the entire dissertation across the mixed methods study.

Chapter 5: Conclusions from Qualitative and Quantitative Analysis and Future Research

Introduction

In this final section of this dissertation, the conclusions that can be drawn from the Qualitative and Quantitative analyses will be reviewed. The resulting overarching conclusions for the dissertation will be drawn. Limitations in these conclusions will be addressed before the dissertation concludes with suggestions for next steps and future research.

Summary of Qualitative Conclusions

As previously stated, and used to inform the Quantitative method, the data collected in the Qualitative method yielded the following conclusions for this dissertation:

- Public Market Research is viewed positively by Contracting Professionals.
- Protests were not as prevalent among those interviewed.
- Successful protests were very rare; protests may not be as prevalent as once thought.
- Lack of authority to make decisions and the high amount of bureaucracy slowed decision making.
- Type of contract can play a role in the success of an acquisition.
• Use of a contract vehicle can speed up procurement.
• The length of the contract can be a determining factor in the efficiency of award.
• The dollar value can be determining factor in the success of an acquisition.
• The organization can play a role in determining the success of an acquisition.
• Competition type may play a role in the outcome of an acquisition.

These qualitative conclusions have implications for the specific topic and research questions of this dissertation, which pertained to Public Market Research’s impact on LEITS acquisition and the most value adding aspects of the acquisition process. The goal was to make recommendations for how to conduct the most efficient and effective LEITS acquisitions.

To support the dissertation goal, answering the research questions, and making recommendations to improve LEITS acquisition, the dissertation finds that Public Market Research is viewed positively by Contracting Professionals. Public Market Research being a positive and value adding component of the current LEITS acquisition process is a conclusion that can safely be drawn and was confirmed by the thick interviewing of contracting professionals in the qualitative through the number of comments made in a positive manner about the utility of Public Market Research. The communication that public Market Research fosters between industry and government was viewed as a positive.

Other conclusions can be drawn that align to the topic and the research questions, which were supported by data points gathered from the thick interviews of subject matter experts and contracting professionals, included the type of contract can play a role in the success of an acquisition. According to the interviewees, firm fixed priced resulted in slower procurements than time and material (T&M) type contracts. Thus, a conclusion in support of the research question of, “what are the most value adding aspects, in terms of efficiency and effectiveness, within the current acquisition process for LEITS,” is that the use of T&M can increase the efficiency with which LEITS acquisitions are awarded.
Relating to the research question of the most value adding aspects of the current process, it was noted by the interviewees that the use of a contract vehicle potentially sped up procurements by providing predetermined and pre-negotiated terms and conditions was noted. Therefore, a recommendation is drawn that using a contract vehicle can increase the efficiency of an acquisition. Further, the length of the contract can be a determining factor in how quickly something gets awarded, as the shorter the term (or period of performance) of the contract, typically contracting professionals see an easier path to award. Thus, a recommendation can be made that to increase the efficiency of a LEITS acquisition, a shorter period of performance should be used. This also holds true with the dollar value, as that can be determining factor in the success of an acquisition. Smaller dollar contracts had an easier path to award, in the experience of the interviewed contracting professionals. As such, a recommendation can be made to increase the efficiency of a contract award, or decrease the amount of time taken to make the award, a smaller contract value should be used.

Multiple interviewees shared that the competition type may play a role in the outcome of an acquisition, thus providing ground for that conclusion to be drawn. Therefore, a determination can be made relative to the second research question: what are the most value adding aspects in terms of efficiency and effectiveness within the current acquisition process for LEITS? If seeking efficient or quick award, going with no or limited competition is recommended.

Other conclusions included that Protests were not as prevalent among those interviewed, as the most Protests any one interviewee had been involved in was two. Further, successful protests were very rare; only one interviewee had one protest upheld. As such, we can conclude that protests may not be as prevalent as once thought. The fear some contracting professionals have of protests, and that fear causing them to limit communication with industry, is somewhat unfounded. With protests being
revealed as less frequent than perhaps thought, the fear of a protest should not be allowed to hamper transparent, consistent communication with industry.

The qualitative also concluded, based on the interviews of professionals in the field that lack of authority to make decisions and the high amount of bureaucracy slowed decision making in the process. This was supported by the high number of interviewees sharing this view. Interviewees who had worked at numerous commands and at different services shared that the organization could also play a role in determining how well an acquisition is conducted, which can be another conclusion drawn from the qualitative study.

With these qualitative conclusions drawn from the data gathered in the thick interviews of contractive professionals, the dissertation could use the emerging variables to inform test data and shape the quantitative conclusion.

**Summary of Quantitative Conclusions**

With the conclusions from the Qualitative method identified, and corresponding IVs/factors/predictors of LEITS acquisition success pertaining to those conclusions defined, the Qualitative analysis was conducted against the data set compiled by the researcher. Some resulting conclusions could be drawn from Quantitative methods that were run against the data set. The conclusions include:

- The duration of a contract effects the days to award
- The contract award year effect the days to award
- The organization conducting the acquisition effects the days to award
- The competition type effects the days to award
- Protests are less prevalent than thought
- Protests are rarely upheld
• The one instance where a protest was upheld, Public Market Research was not utilized
• Competition Type was found to be a statistically significant predictor of the presence of a protest
• Option years are very often executed. It is rare for a contract to not have the option years executed

These quantitative conclusions have implications for the specific topic and research questions of this dissertation, which pertained to Public Market Research’s impact on LEITS acquisition and the most value adding aspects of the acquisition process. The goal was to make recommendations for how to conduct the most efficient and effective LEITS acquisitions. To support the goal, answering the research questions, and making recommendations to improve LEITS acquisition, the dissertation’s quantitative method conducted a series of four tests.

The first test in the quantitative method, a multiple linear regression using SPSS 24, revealed that Duration, Contract Award Year, Organization, and Competition Type have a statistically significant effect on predicting the days to award for LEITS acquisitions in the data set that was developed for this dissertation. From this, conclusions supporting the assertions from the qualitative, that shorter contract durations are more easily awarded and the competition type influence the length of time to award, are supported by the quantitative method. Thus, in line with the research question related to the most value adding aspects in terms of efficiency and effectiveness within the current acquisition process for LEITS, the recommendation to increase the efficiency of a LEITS acquisition, a shorter period of performance should be used and if seeking efficient or quick award, going with limited competition through a small business set-aside is recommended.

Another conclusion that can be drawn from the quantitative study—which supports a conclusion in the qualitative as well as the topic of the dissertation, the hypothesis of the study, and the first research question—is seen with protests and Public Market Research. In the one instance in which a protest was
upheld in the data set analyzed in the quantitative study, Public Market Research was not utilized. Though only a sample size of one, and addressed in the Limitations section of the dissertation, this is a piece of data supporting both the qualitative as well as the overall topic and hypothesis of the dissertation. Thus, a conclusion that can be drawn is that Public Market Research is a positive and value adding attribute of the LEITS acquisition process, answering the first research question in this dissertation.

Using descriptive statistics from the data set assembled, another quantitative conclusion that is in line with conclusions consistent with the qualitative method can be seen. These include that protests are less prevalent and impactful than thought. Of the 114 competitions observed, only 19 had protests, approximately 16%. Further, the descriptive statistics showed that protests are rarely upheld, with only one being upheld, which amounts to 5% of those 19 protested observations and less than 1% of the total competitions observed.

Two other quantitative conclusions that can be made through the data analysis are that the Competition Type has a negative effect on whether a protest is filed or not. This makes sense, as it would be very unlikely that a non-competitive contract would have a protest filed. The very nature of a non-competitive contract, being that it is awarded directly to a company and not competed, would mean that there is a negative effect on a protest being filed. Further, the descriptive statistics show that it is rare for a contract to not have the option years executed. Within the data set compiled for this quantitative method, approximately 94% of option years were found to be executed (107/114). With the quantitative conclusions summarized, the overarching, overall conclusions for the dissertation can be reviewed.
**Overarching Conclusions for Dissertation**

The purpose of this dissertation was to build upon previous research in two ways: to understand how Public Market Research impacts the LEITS acquisition process in the DoD and identify strengths and value-added components that exist in the current government acquisition process leading to greater efficiency and effectiveness, specifically within DoD LEITS acquisition. The end objective or goal of this dissertation was to provide recommendations, consistent with the current acquisition framework, around how to conduct the most efficient and effective LEITS acquisitions.

The research questions focused on the public administration issue of understanding what aspects of the current IT acquisition processes add greater efficiency and greater effectiveness within the DoD acquisition for LEITS. The first succinct question this research study sought to answer was the following: Within the existing DoD contracting processes used to acquire LEITS, does Public Market Research increase the efficiency and/or effectiveness of LEITS acquisition? A secondary research question sought to answer was the following: What are the most value adding components, in terms of efficiency and effectiveness, within the current DoD acquisition process for LEITS? The researcher contended that the use of Public Market Research on LEITS requirements increases the fair, open, and frequent interaction with industry, increasing the efficiency and effectiveness of acquisition.

With that review of the purpose, research questions, and hypothesis within this dissertation, the overarching conclusions resulting from both the qualitative and quantitative methods are discussed. The conclusions are:

- Public Market Research is a value-adding component.
- Successful protests were very rare; protests may not be as prevalent and once thought and the fear of them should not prevent communication with industry.
• The type of contract can play a role in the success of an acquisition, with T&M being more efficient.
• The use of a contract vehicle can speed up procurement.
• The length of the contract can be a determining factor in how quickly a solicitation gets awarded.
• The dollar value can also be determining factor in the success of an acquisition.
• The Competition Type effects the Days to Award.
• Competition Type will influence the likelihood of a Protest.
• In the one instance where a protest was upheld, Public Market Research was not utilized.
• Option years are very often executed. It is rare for a contract to not have the option years executed.

In the below section, we will discuss each overarching conclusion, in depth, and the impact it could have on LEITS acquisition.

The first and most critical conclusion drawn through the mixed methods study addressed the first research question pertaining to whether Public Market Research is a value adding component of the LEITS acquisition process. As discussed in the literature review through studies by Corzine (2015) and then Mills et al. (2011), it was determined that transparency, communication, and expertise essential elements in successful acquisitions or partnerships between industry and government. With transparency and communication established and substantiated as being critical, the qualitative method confirmed that Public Market Research was a value-adding component of the LEITS acquisition process, as this was the most commonly mentioned, positive comment by the acquisition professionals. A hypothesis of the researcher’s was that the use of Public Market Research on LEITS requirements increases the fair, open, and evenly distributed interaction with industry and with the increase in communication, there will be a corresponding increase in the efficiency and effectiveness of LEITS acquisitions. The prior research and
qualitative method would confirm this hypothesis. Further, this conclusion is also backed up by the researcher’s professional experience. Therefore, the dissertation will recommend that LEITS utilize Public Market Research.

Another conclusion dealt with protests. It was concluded that successful protests were very rare. Both the qualitative study, through interviews with contracting professionals, and the quantitative study demonstrated that very few protests were successful. None were observed in the qualitative and only one in 19 in the quantitative was successful. Further, protests may not be as prevalent as once thought. It is the researcher’s experience that the fear of protests can sometimes affect how a contracting professional behaves, particularly when it comes to interacting with industry. However, both the qualitative and the quantitative investigations showed that protests were infrequent, with the interviewees seeing very few protests (two at most) and only 19 out of 114 samples in the quantitative observing a protest. As such, the dissertation recommends that contract professionals not allow the threat of a protest to cloud their thinking and execution of a LEITS acquisition, especially when it comes to communicating with industry using Public Market Research.

Further conclusions strive to address the second research question around the value adding components of the current acquisition process and items to consider in a LEITS acquisition. The type of contract can play a role in the success of an acquisition. The previous research, specifically one of the two articles found through the literature review that had direct correlation to this dissertation’s topic, and the qualitative research method supported this conclusion. Tied closely to the type of contract, the use of a contract vehicle can speed up procurement. The contracting professionals in the qualitative portion provided support for this conclusion in that contract vehicles can improve the potential for success in a LEITS. Both of these conclusions are supported by the researcher’s personal experience. Therefore, the
dissertation will recommend selecting a contract type that aligns with the LEITS acquisition's goal and consider using a contract vehicle to speed up the LEITS acquisition and achieve success.

Also, the length of the contract can be a determining factor in the efficiency of a solicitation award. The interviews of contracting professionals and the researcher's experience give credence to this conclusion and make it a worthwhile overarching conclusion to take away from this study. The longer the contract, the longer the time to award, per the qualitative and the researcher’s experience. The dollar value can be determining factor in the success of an acquisition. The qualitative and quantitative methods both supported this conclusion in that the larger the dollar value, the longer it takes to award a contract. It is the recommendation of this dissertation for contracting professionals to consider the goals of their acquisition and the success factors; if they are not concerned about the days to award or the length of time and award will take in a LEITS acquisition, then they can issue a longer period of performance and a higher-value contract. If speed is critical to a LEITS, and days to award need to be minimal and protests are to be awarded, the dissertation recommends keeping the period of performance shorter and the contract value lower.

The competition type affects the days to award and the success of an acquisition. The prior research and both qualitative and quantitative portions of this study all support this conclusion. If there is limited competition, or in other words a small business set-aside acquisition, the days to award are lower, increasing the dissertation’s definition of success. If it is a highly competitive LEITS acquisition, the days to award can be higher. Therefore, it is recommended that if days to award are critical and the avoidance of protest is desired for a LEITS acquisition, a contracting professional should seek to issue a small business set-aside competition or a sole source instead of a highly competitive full and open award.
Further, Competition Type will also influence the presence of a Protest. Competition Type has a negative effect on whether a protest is filed or not. The very nature of a non-competitive contract, in that it is awarded directly to a company and not competed, would mean that there is a negative effect on a protest being filed. Thus, it would be very unlikely that a non-competitive contract would have a protest filed.

A final overarching conclusion that can be drawn from the qualitative and quantitative investigations is that option years are very often executed. It is rare for a contract to not have the option years executed, as was observed through the qualitative method. The researcher’s own experience can verify and confirm this. As such, this dissertation recommends that in future studies, the frequency of the option years being executed not be utilized as a measure of success.

Ultimately, the researcher’s conclusion is one that espouses greater Government-Industry interaction. In fact, the recent conclusion of the 809 Panel (2019) supports this. The problem was articulated by the 809 Panel: “Despite attempts by government wide and DoD acquisition leaders since Congress passed the Federal Acquisition Streamlining Act of 1994 (FASA), DoD acquisition personnel and individuals in the marketplace have expressed concern about communicating with each other openly and frequently throughout the acquisition process, for fear of legal violations” (Section 809 Panel, 2019). What has been recommended by this panel is to “establish a market intelligence capability to enhance the government’s industry knowledge to become a smart buyer … and conduct more robust market research” (Section 809 Panel, 2019). In short, these Section 809 Recommendations can be considered consistent with those of this dissertation to utilize Public Market Research as a means to increase efficiency and effectiveness through fair and consistent interaction and communication with industry.
Limitations

It cannot be ignored that the quantitative study’s statistical models, in large part, were poor fits for finding significant relationships among the data. This is due to the fact that this data may not have been the exact right data for this analysis and other limitations.

Upon review and reflection, the researcher has understood that some of the limitations of this study and possible reasons the data might not have been a great fit. Some potential reasons are listed in the following paragraphs.

In DoD contracting, there is lots of variability between individual programs as well as between departments and even commands within those departments. As observed by Christle, et al. (2009) in the literature review, we see that there is a lack of uniformity in how processes are applied in acquisition, including LEITS acquisition. As such, there is great variability between procurements within different departments. This lack of uniformity adds variability and presents a limitation to this study.

Another limitation is that eight IVs were selected to be studied. There are many other factors, aside from these eight, that contribute to success or failure of these LEITS programs. A model that is more robust, and accounts for more than just eight variables, could have been less limiting and produced greater fidelity in the results.

Tying to the previous limitation, a further limitation of this study was that the qualitative study yielded many potential factors that can help determine the success of a LEITS acquisition, as defined by this dissertation. Not all the factors identified by the qualitative study were accommodated within the quantitative study. Most notably, the factors of training of staff administering the LEITS acquisition and the collaboration of acquisition and program leadership to develop a clear requirement were not tested in the quantitative model.
The training of staff administering LEITS acquisition and the collaboration of leadership were not tested primarily because these factors can be very difficult to both define and quantify. It would take a tremendous amount of research to ask the questions of those working the acquisition to rate the training of procurement people involved and the maturity of requirements. Further, it is unlikely accurate measures could be gained given the subjectivity. As such, these key factors, and their inability to be accounted for, are limitations of this study.

A further limitation is that only 114 samples were gathered. A greater sample size could have presented more fidelity in the results and, thus, is a limitation of this study. The smaller sample size was due in part to the fact that some period of performance on a contract had to be observed to gauge if options years were executed. This aspect of the design is also, in of itself, a limitation. Some of the samples in the data were over 5 years old. As a result, the recency aspect of the quantitative method suffered, presenting a limitation.

This dissertation is very focused on the post-RFP release processes and timeframe of an acquisition to measure efficiency. In addition to Market Research, many factors go into the planning of an acquisition and the main expense of time might not be time from RFP release to award, but time from inception of an idea to RFP release. As such, a limitation of the study is that the complete Procurement Administrative Lead Time (PALT) is not considered in the measure of efficiency or effectiveness.

A final limitation that is deserving of discussion stems from another fundamental aspect of the research. The definition of success was crafted out of the need for it to hinge on publicly available information that could be easily transformed into quantitative variables. As such, days to award, protest (categorical), and option years being executed (categorical) were selected. These are, likely, not the best measures of success, especially when compared to the use of CPARS data as Wilhite, and colleagues (2013) did in that previous research study. As such, the use of more less aligned performance measures
were a limitation in this study. It could be argued that the simplicity of the measures of success in terms of efficiency and effectiveness as defined in the dissertation is a limitation.

**Next Steps and Future Research**

With the dissertation complete, the overarching conclusions drawn, and the limitations of this dissertation reviewed, next steps and future research building off this dissertation can be suggested. The first suggestion for future research deals with the current research design. It is recommended that the researcher hone this model and look for other potential correlations between variables and days to award/protests/options years executed that could lend insight into the LEITS acquisition process. This includes trying to test new variables or introducing new tests to try and yield statistically significant results.

Further, there are many other factors, aside from these eight IVs that were tested, that contribute to success or failure of these LEITS programs. A model that is more robust, and accounts for more than just eight IVs, could have been less limiting and produced greater fidelity in the results. Thus, it is recommended that other variables be developed and introduced into a future research design.

Another recommendation for future research stemming from this dissertation study pertains to the qualitative study’s inputs that were omitted. The qualitative method revealed that LEITS acquisition professionals felt that training, mature requirements, and consistent use of the process contributed to variability in the outcomes of LEITS acquisitions. One of the recommendations of this dissertation, for continued and ongoing research, is to find a manner that will allow for testing of hypotheses and research questions related to training and consistency of the application of the process in DoD services acquisition. Thus, a future research project that strives to address the training, maturity of requirements, and consistency in application of the acquisition process would be a worthwhile endeavor.
A final future research recommendation would offer a twist on the research design utilized in this dissertation study, by changing the definition and measure of success. In this study, the quantitative DVs, or the measure of success, was defined by few days to award, no protest, and the execution of option years. Better measures of success exist in LEITS acquisition and the resulting programs. The measures of success in this study were chosen, mainly, because the data supporting these three DVs were publicly available. Studies like Wilhite, et al.’s (2013) show that better measures, like CPARS, are available for inclusion in a study. The challenge is that CPARS are only available to government employees with access to the CPARS database. As such, this dissertation recommends that in future studies, the days to award, protests, and/or frequency of the option years being executed not be a measure of success. Instead, it is recommended that the use of CPARS data as Wilhite, and colleagues (2013) leveraged in their research study, be utilized. With that, the use of more highly aligned performance measures will be a recommendation for future study.
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Appendices

Appendix 1 – WCU IRB Approval Letter

[Image of WCU logo]

TO: Thomas Denning & Jeremy Phillips
FROM: Nicole M. Cattano, Ph.D.
Co-Chair, WCU Institutional Review Board (IRB)
DATE: 5/20/2019

Project: The Acquisition of Services Around Leading Edge Technology in the U.S. Department of Defense- an Analysis of how to Improve Contracting Through the use of Market Research - Continuing Review/Transition to Updated Common Rule
Date of Approval: 5/20/2019

☑️ Expedited Approval

This protocol has been approved for a continuing review, and is limited to identifiable data analyses only with no new participant recruitment/enrollment. Therefore it has successfully transitioned to the new updated 45 CFR 46 common rule that went in to effect January 21, 2019. As a result, this project will not require continuing review. Any revisions to this protocol that are needed will require approval by the WCU IRB. Upon completion of the project, you are expected to submit appropriate closure documentation. Please see www.wcupa.edu/research/irb.aspx for more information.

Any adverse reaction by a research subject is to be reported immediately through the Office of Research and Sponsored Programs via email at irb@wcupa.edu.

Signature:

[Signature]
Co-Chair of WCU IRB

WCU Institutional Review Board (IRB)
IORG#: IORG0004242
IRB#: IRB00005030
FWA#: FWA00014155
TO: Thomas F. Denning
FROM: Nicole M. Cattano, Ph.D.
Co-Chair, WCU Institutional Review Board (IRB)
DATE: 4/24/2018

Project Title: The Acquisition of Services Around Leading Edge Technology in the U.S. Department of Defense- an Analysis of how to Improve Contracting Through the use of Market Research
Date of Approval: 4/24/2018

☑ Expedited Approval

This protocol has been approved for a period of one year. Approximately two months prior to the approval end date, you will receive a Continuing Review of Research form. Per Federal regulations, this form must then be completed as soon as possible and returned to the IRB at irb@wcupa.edu, even if the project has been completed or discontinued. Any revisions to this protocol that are needed before that time will require approval by the WCU IRB. Please see www.wcupa.edu/research/irb.aspx for more information.

Any adverse reaction by a research subject is to be reported immediately through the Office of Research and Sponsored Programs via email at irb@wcupa.edu.

Signature:

Co-Chair of WCU IRB

Protocol ID # 20180424-R
This Protocol ID number must be used in all communication about this project with the IRB.
Appendix 2 – Survey Questions

Survey Taker (Subject) Name:

Unique Identifier Number (5 digits to be assigned by the Investigator):

Email:

Phone Number:

Work Location:

Survey Questions:

1. How long have you been involved in DoD Contracting?
2. What department/agency have you represented/worked with as a Contracts professional?
3. Roughly how many protests did your department/agency see last year and on how many procurements?
4. Roughly, how many days does it take you to go through the evaluation process in your department/agency to make a contract award?
5. Will you be willing to participate in anonymous one on one interview to describe improvements to processes that can increase efficiency and effectiveness in DoD contracting?
Appendix 3 – Interview Questions

Interview Questions

Ten questions were used as a starting point for conducting the interviews. However, the researcher allowed the conversations to proceed organically, allowing the subject to respond in a complete, candid fashion. The 10 questions were:

1. How long have you been involved in DoD Contracting?
2. How many leading-edge technology services acquisitions have you undertaken?
3. What department/agency have you represented/worked with as a Contracts professional?
4. Roughly how many protests did your department/agency see last year and on how many procurements?
5. Roughly, how many days does it take you to go through the evaluation process in your department/agency to make a contract award?
6. What creative innovative means of contracting have you observed?
7. Do you feel public Market Research helps make better acquisitions?
8. What are your views on Other Transactional Authority (OTA) use in services acquisition?
9. Do you feel the current acquisition process for services works? Why or why not?
10. What do you feel are ways to improve the current process, within the confines of the FAR and DFAR?
Appendix 4 – Consent Forms: Sample of Informed Consent Form

WEST CHESTER UNIVERSITY
Informed Consent for Participants
in Research Projects Involving Human Subjects

Title of Project: A Survey to Study Market Research in Government Contracting

Investigator(s): Thomas (Tim) Denning

I. Nature and Purpose of this Research Project

You are being asked to participate in a survey identify the positives and negatives of market research in the government contracting process. Through an analysis, this project will work to identify pluses and minuses, allowing me to draw conclusions which can inform policy recommendations.

II. Explanation of Procedures

If you agree to be in this study, there will be two phases. In the first phase, you will be asked to answer a 5 min long survey. The survey will take place virtually. You will be asked to answer an internet hosted survey. We ask that you answer the questions posed by multiple choice selections or short answers.

In the second phase, you will be asked to participate in a 30-60 min interview of open ended questions. The survey will take place face to face in a neutral location. We ask that you answer the questions posed via an open, friendly discussion.

III. Identification of Any Experimental Medical Treatments or Procedures

There are no Experimental Medical Treatments or Procedures in this survey or interview.

IV. Discomforts and Risks

The investigator does not anticipate any risks to you participating in this study other than those encountered in day-to-day life. The information from this survey will be used by West Chester University. There are no Experimental Medical Treatments or Procedures.

V. Benefits

No promise or guarantee of benefits has been made to encourage you to participate.
VI. Confidentiality

Your personal answers to this survey will be kept private. In any sort of report we make public we will not include any information that will make it possible to identify you. Research records will be kept in a locked file; only the primary investigator, Thomas Denning, will have access to the records. Consent to confidentiality will be kept for three years.

Taking part in this study is completely voluntary. You may skip any questions that you do not want to answer. If you decide to take part, you are free to withdraw from the survey at any time.

The WCU Institutional Review Board (IRB) may view the study’s data for auditing purposes. The IRB is responsible for the oversight of the protection of human subjects involved in research.

VII. Compensation

There is no compensation to you for participating.

VII. Name of Person to contact in case of research-related injury

Please advise who should be contacted in case there is an emergency during the survey or interview.

Name: 
Relation: 
Phone number: 

VIII. Freedom to Withdraw

It is important for you to know that you are free to withdraw from this study at any time without penalty. You are free not to answer any questions that you choose or respond to what is being asked of you without penalty.

IX. Questions or Concerns

If you have questions: The researcher conducting this study is Thomas (Tim) Denning. If you have questions, you may contact Tim at . You can also contact Dr. Jeremy Phillips at . If you have any questions or concerns regarding your rights as a subject in this study, you may contact the Institutional Review Board (IRB) at.

You will be given a copy of this form to keep for your records.

Statement of Consent: I have read the above information, and have received answers to any questions I asked. I consent to take part in the study.
In addition to agreeing to participate, I also consent to having the interview tape-recorded.

The anonymity offered to the participants and the anonymous nature of the interviews conducted prevent the name and signatures of the participants being shared here. Each participant did acknowledge and fill out form. All participants were able to provide consent for themselves.